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ROENTGENOLOGICAL MANIFESTATIONS OF INJURIES TO THE CHEST*

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YOUR invitation to deliver the Carman Lecture carries with it, to me, a feeling of special significance. It was Dr. Russell Carman, who, in 1912 as roentgenologist for Washington University Medical School, first demonstrated the wonders of roentgenological examination to me while I was still a student in Medical School. I shall never forget the feeling of awe and bewilderment which we experienced as we huddled in the darkened x-ray room awaiting a demonstration of the fluoroscope; nor the sensation of amazement as we beheld the wonders of this new diagnostic agent. Myriads of high tension sparks danced overhead along the high tension wires like messengers conveying their energy to the x-ray tube; the yellowish green fluorescence of the tube itself and the pale light from the fluoroscopic screen lent a sinister hue to the surroundings producing a cadaverous look on the faces of the examiners as they peered into the innermost depths of the patient's body. Little wonder that the demonstration of such a mysterious agent should make a deep impression on a student, and inspire him to seek a career in roentgenology.

Russell D. Carman was a pioneer in roentgenology, who through his careful observations and his analytical deductions made valuable contributions to our knowledge of this science. His greatest accomplishment was in the field of gastro-intestinal roentgenology, and his monograph on this subject brought him recognition from all over the world. It is fitting, therefore, that we should preserve the memory of this great man by a lecture in his honor. Modest and retiring as he was, I am sure that he would prefer that we should proceed, without further recitation of his accomplishments, to a consideration of some phase of roentgenological practice which might stimulate others to further accomplishment in the field which he loved so well.

The subject which I have chosen for my address this afternoon is, I think, a very timely one. The modern tendency toward high speed transportation and intensive methods of mass production in industry has resulted in a great increase in bodily injuries, both to workmen and to the public.

Among the most important of these are thoracic injuries. Injuries to the chest are of such importance because of the liability of injury to, or interference with, the vital organs which it contains. The chest wall is extremely elastic and ordinarily withstands considerable trauma without injury to the underlying organs; on the other hand, it is surprising what apparently slight trauma may result in injury to the lung.

Given a case in which there has been external trauma to the chest, I shall endeavor to point out briefly the various injuries which he may have sustained and to show how roentgenographic examination may aid in their detection.

A. Effects of External Violence (Trauma from Without).

1. Injuries to the Chest Wall;
   (a) Contusion or Laceration of the Chest Wall,
   (b) Subcutaneous Emphysema,
   (c) Fractured Ribs.

2. Injuries to the Pleura;
   (a) Traumatic Pleurisy,
   (b) Subpleural Hematoma,
   (c) Hemothorax.

*The Russell Carman Memorial Lecture presented before the annual meeting of the Minnesota State Medical Association, St. Paul, Minnesota, May 27, 1941.

3. Injuries to the Lung;
   (a) Interstitial Pulmonary Hemorrhage,
   (b) Traumatic Pneumothorax,
   (c) Massive (Atelectatic) Collapse of the Lung.
4. Injuries to the Mediastinum;
   (a) Gun Shot Wound.
5. Injuries to the Diaphragm;
   (a) Diaphragmatic Hernia.

require roentgenographic examination if it were not for the possibility of associated injury to the thoracic organs. In any given case, however, where trauma to the chest has occured, it is well to have a roentgenographic examination of the thorax; even if at the time it shows no abnormality it will serve as a basis of comparison for any subsequent condition which might develop.

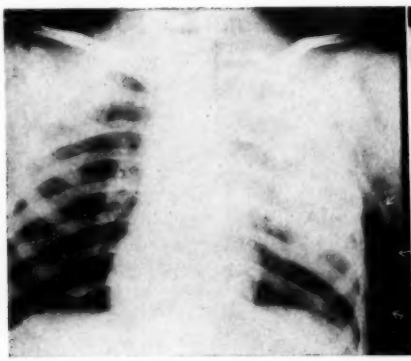

Fig. 1. Subcutaneous emphysema with interstitial pulmonary hemorrhage due to fracture of the ribs from an automobile accident. Note large pocket of air in subcutaneous tissues.

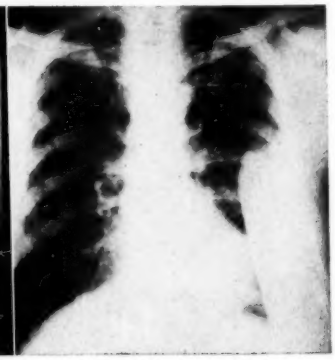

Fig. 2. Subpleural hematoma caused by injury from a batted ball received at twelve years of age. The organized hematoma has persisted into adult life.

External trauma applied to the chest may result in any of these conditions alone, or in almost any combination.

We shall endeavor, in each instance, to indicate the circumstances under which they most frequently occur, and to point out the roentgenographic signs by which they can be recognized.

As a basis for this study, 381 cases of trauma to the chest, which were treated at the St. Louis City Hospital, and St. Mary's Hospital, over a seven-year period will be referred to. Of these, 102 cases were associated with fracture of the ribs sufficiently serious to require hospitalization, 243 cases were of stab wounds and gunshot wounds from a previous study,[3] as examples of more direct, less complicated injury to the lung. These will not be presented as a statistical study, but will be mentioned from time to time to illustrate more clearly various clinical phases of the subject.

Injuries to the Chest Wall—Effect of External Violence

Contusions or Lacerations.—First of all, simple contusion or laceration of the chest wall is one of the most frequently encountered injuries to the chest. It rarely causes difficulty and would not

Subcutaneous Emphysema.—Air in the subcutaneous tissues is relatively common (Fig. 1.), occuring in 15 to 20 per cent of patients with fractured ribs and lacerated wounds of the thorax. It usually remains localized and does not cause any serious consequences. Occasionally, under unusual circumstances, in a lacerated wound of the chest wall, air may be entrapped with each respiratory movement and pumped out into the subcutaneous tissues, resulting in subcutaneous emphysema of serious proportions.

Such involvement may extend beneath the fascia planes to envelope the entire body, extending into the neck and mediastinum, and jeopardizing the life of the individual. In one case of our series subcutaneous emphysema came on from coughing three weeks after injury. Air in the subcutaneous tissue is easily recognized roentgenographically by its lessened density as it appears along the various fascia planes. Fortunately this is usually easily controlled and only rarely presents involvement of serious proportions.

Fractured Ribs.—Perhaps the type of injury which is most frequently encountered is fracture of the ribs (Fig. 5). One would think that, being a bony injury, a fractured rib would always be

readily detectable by roentgenographic examination. While this is true under most circumstances, yet under certain conditions fractured ribs may be very difficult to detect. This may be due to the numerous linear shadows produced by the lung structures which pass over the ribs closely resembling fracture lines or it may be due to the location and character of the fracture. If for instance the fracture is in the axillary line it may not be detectable in the ordinary anterior or posterior views of the chest and special detailed views over the site of maximum injury may be required to demonstrate the fracture. Then again, if the location of an injury is near the sternal attachments of the ribs it must always be borne in mind that the cartilaginous portions of the ribs may not show evidence of injury in the roentgenogram. At times, the distinct crepitus attained by physical examination may be a more reliable guide for the detection of simple fracture than the roentgen examination.

Usually fractured ribs are simple, unattended with serious complications, but occasionally this may not be the case. Death may occur from embolus several days later. Rupture of an intercostal artery may result in extensive and even fatal hemorrhage.

Death under such conditions may occur suddenly, or hemorrhage from this source may come on several days after simple fracture even where roentgenographic examination at the time of injury failed to reveal any evidence of fluid in the chest cavity. Such an instance was encountered in a sixty-five-year-old man, who died suddenly three days after a fractured rib, from hemorrhage. Multiple fractures of the ribs are usually associated with crushing injuries. Under these conditions the injury to the underlying lung structure is of greater importance than the fractures themselves. In 18 per cent of the patients in our series fractured ribs were associated with varying degrees of hemorrhage into the lung and hemothorax.

Injuries to the Pleura

Traumatic Pleurisy.—There is, of course, some injury to the pleura whenever a rib is fractured. Injury to the chest wall, however, may result in traumatic pleurisy even without associated fracture of the ribs. Clinically, this condition is manifested by acute pains on deep inspiration coming on from three to six days after injury. Traumatic pleurisy manifests itself as a thickening of the pleura, either localized to the site of trauma, or involving the entire parietal pleura. Roentgenographically, thickening of the pleura appears as a ribbon-like shadow extending along the parietal chest wall. This appearance is explained by the fact that the thickened pleura forms an upright cylindrical structure so that a greater thickness of the pleura is viewed on the lateral than on the anterior or posterior chest wall. If the pain is severe, immobilization of the diaphragm on the affected side may occur in a high position. This splinting of the diaphragm is a defense reaction against pain. The inflammation usually subsides within a few days or a week, and the roentgen picture returns to normal. Only rarely, in severe instances, does pleural effusion result.

Subpleural Hematoma.—A rather unusual occurrence with injury to the chest wall is the development of a localized pleural hematoma from hemorrhage under the parietal pleura. Such collections of blood produce roentgen findings similar to localized collections of pleural exudate which frequently occur from infection. The pressure of the blood produces a rounded enlargement pressing inward toward the compressible lung. Such collections of blood may remain unabsorbed for long periods of time and may be ultimately replaced by fibrous tissue or by large plaques of calcium deposit.[2] For hemorrhagic areas to undergo organization and calcification, the hemorrhage most frequently involves the interstitial or intramuscular tissue. It is questionable if blood free in the pleural cavity ever undergoes organization. We have observed a patient (Fig. 2) showing such a subpleural hematoma for a long period, who gave a history of injury to the chest by a batted ball at twelve years of age. He came under our observation first at thirty-seven years of age and the condition has showed no change over the last eight years.

Hemothorax.—Hemothorax usually results from damage to the lung as the result of a crushing injury to the chest wall or a penetrating wound of the chest, or from rupture of an intercostal artery following fracture of a rib. Hemothorax may occur from injury to the diaphragm and underlying abdominal viscera or from injury to the heart or mediastinum, usually under such circumstances from a penetrating wound.

Clinically, the immediate symptoms are more

from loss of blood than the accumulation of fluid in the chest. Blood does not clot as readily in the pleural cavity as it does elsewhere in the body, however, and the bleeding may continue for many days or weeks. Fluid blood may be aspirated from the chest cavity as long as three months after injury. Roentgenographically hemothorax, when fully established, presents no difference in appearance from ordinary pleural effusion, the density of blood being so nearly the same as other fluid (Fig. 3*A* and *B*). Free fluid in the pleural cavity presents a dense homogeneous shadow in the lower portion of the chest cavity with a hazy concave upper border extending from the hilum region upward and outward toward the axilla. The hazy curved upper border is explained in the following manner: as fluid accumulates in the lower portion of the chest it displaces an equivalent volume of lung structure, expressing sufficient air from the lung by pressure to equalize this amount. The distended air-filled lung presents an elastic body for the fluid to press against, attached only at the hilum of the lung and free to move at the periphery. It is only natural therefore that the lung should be floated upward more readily at the periphery with the development of a curved border. If associated with pneumothorax, the positive air pressure in the pleural cavity results in collapse of the lung, thereby removing the elastic body for the fluid to press against which in turn results in the establishment of a straight line fluid level.

Shortly after injury, however, hemothorax may not take on the classical appearance of pleural effusion. The slow escape of blood from a localized point in the lung or pleura permits it to spread itself out in a thin layer between the surface of the lung and the parietal chest wall producing a diffuse hazy appearance over the entire lung field. At this stage the density is not sufficient to obliterate the shadows of the ribs. Later, however, with the gravitation and collection of the blood in the most dependent portion of the chest, it takes on the appearance of an ordinary pleural effusion. Rarely is there displacement of the mediastinal structures. When mediastinal displacement is present it indicates a serious condition since a sufficient amount to cause shift of the mediastinal structures represents a dangerous loss of blood.

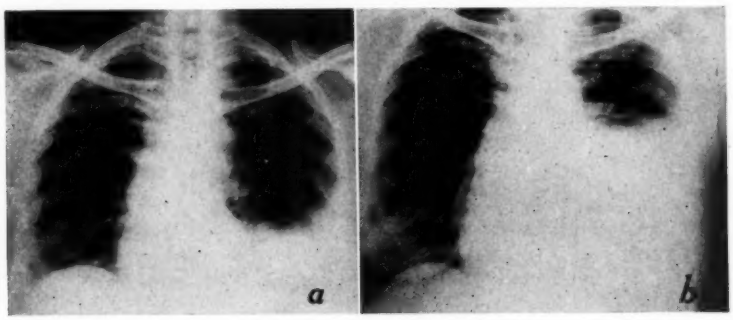

Fig. 3, *A*.—Hemothorax from rupture of intercostal artery due to fractured ribs. The blood, free in the pleural cavity, takes on the characteristic appearance of ordinary pleural effusion.
B.—Same patient a month and a half later showing considerable increase in amount of fluid. Blood does not clot as readily in the pleural cavity and bleeding may continue for long periods. Fluid blood has been aspirated from the chest three months after injury. Temperature reaction from foreign proteid absorption may erroneously suggest the development of empyema.

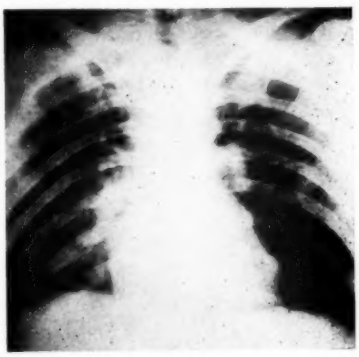

Fig. 4. Mottling of lung field indicating interstitial pulmonary hemorrhage. Patient fell flat on his back without sustaining fractured ribs or other injuries to chest wall. Patient expectorated blood; bloody expectoration is a common accompaniment of interstitial hemorrhage. Examination was made immediately after injury.

One of the most dreaded complications after a penetrating wound of the chest is infection. That the temperature reaction is not a reliable guide where large amounts of blood are in the chest is evident from patients whom we observed for the coughing up of blood is usually a most prominent symptom of this condition. Roentgenographically interstitial hemorrhage into the lung is manifested by blotchy irregular areas of increased density throughout the lung field, which

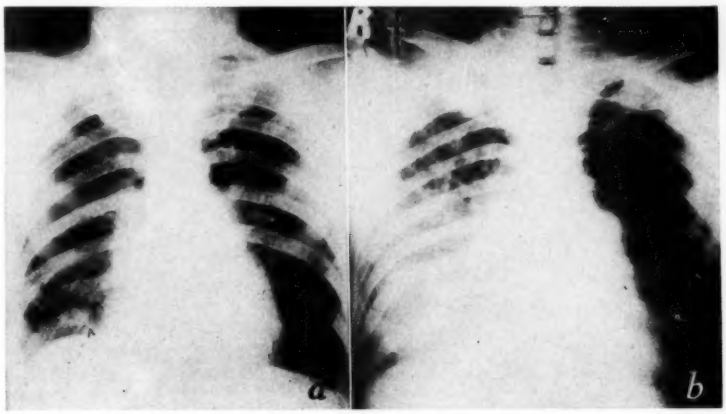

Fig. 5. *A*.—Delayed interstitial pulmonary hemorrhage from fracture of the ribs as the result of a fall. Examination after injury showed some separation of the fragments but little evidence of injury to the underlying lung.
B.—Further examination a short time later revealed hemorrhage into the lung structures.

days with temperatures running as high as 103.5, in which cultures of the aspirated blood were sterile and the patients ultimately recovered after simple aspiration. Such actions must be attributed to absorption of foreign proteid, incident to blood disintegration. After blood remains for a considerable time in the chest, it undergoes chemical change and is absorbed only very slowly by the pleural surface. Often aspiration is necessary for ultimate recovery. That infection of a hemothorax is a relatively rare condition is indicated by the fact that in 174 penetrating wounds of the chest in our series, only 3 developed empyema.

Injuries to the Lung

Interstitial Pulmonary Hemorrhage.—Crushing injuries of the chest with multiple fractures of the ribs often result in serious damage to the underlying lung. Penetrating wounds of the chest are likewise very apt to cause injury to the lung with hemorrhage into its interstitial tissue. It is possible, however, to have hemorrhage into lung tissue from a blow on the chest without a mark being left on the chest wall (Fig. 4). Clinically, there is dyspnea from loss of air space, a sense of oppression and pain in the chest, and are usually evident immediately after injury. Such a lung injury is in itself serious, from the standpoint of the extent of damage to the lung and the amount of hemorrhage rather than the possibility of subsequent infection. The failure of the blood to clot as readily in the pleural cavity as elsewhere may result in slow continuous bleeding for days. In view of this possibility, the clinician should never permit a single negative roentgenogram taken immediately after injury to develop in him a feeling of false security. Subsequent roentgenographic examinations may show a continually increasing extent of bleeding in the lung (Fig. 5*A* and *B*). Moderate collections of blood may be completely absorbed from the pleural cavity but large quantities, especially after chemical changes have occurred, are absorbed very slowly and should be removed. In our experience abscess of the lung does not occur from injuries to the lung unless the infection is introduced from the outside by a penetrating wound of the chest. Even under these circumstances infection of the lung or pleural cavity, even following penetrating wounds is extremely rare. The ultimate prognosis seems to depend in great part on the amount of lung damage and extent of the hemorrhage. In simple penetrating

wounds of the lung the percentage of fatalities is small, one to two per cent, whereas in crushing wounds it is fully thirty-three per cent.

Traumatic Pneumothorax.—Injury to the chest wall, with or even without fracture of the ribs, may result in pneumothorax with collapse of the lung (Fig 6). Strangely enough, the lung may receive extensive injury with interstitial hemorrhage, without development of pneumothorax; whereas pneumothorax may occur as a result of trauma to the chest wall without fracture of the ribs or evidence of external injury. We have encountered cases of pneumothorax where an automobile tire had passed over the chest without fracturing the ribs or leaving a mark on the chest. Pneumothorax quite consistently results from diving or falling into the water from great heights, where the individual strikes the surface of the water flat on his chest. Under such circumstances the ribs are not fractured but the skin shows extensive ecchimoses over the entire area. By far the most common causes of pneumothorax, however, are penetrating wounds of the chest, of which stab wounds and gunshot wounds are the best examples (Fig. 7). Stab wounds are most likely to produce pneumothorax but it is remarkable how often even such wounds fail to produce any evidence of this condition.

Roentgenographically pneumothorax is recognized (1) by a clear peripheral zone rendered free of lung markings by collapse of the lung and (2) by the clearly outlined margin of the lung itself. The picture is quite characteristic and can hardly be mistaken for anything else. If there is associated effusion, this takes on a straight line fluid level. Simple penetrating wounds of this sort, even if they produce pneumothorax, are rarely of serious consequence. If there is a large amount of associated hemothorax, however, beware of injury to the subdiaphragmatic organs, especially to the liver. Such injuries may result in death fully two weeks later from liver damage.

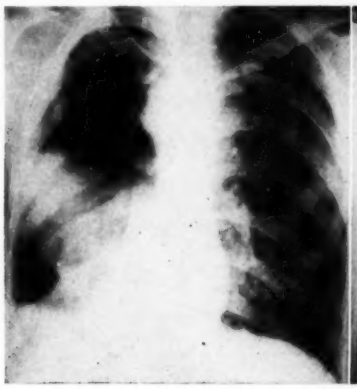

Fig. 6. Bilateral pneumothorax from fractured ribs as a result of an automobile passing over the body. Complete collapse of the left lung and partial collapse of the right. About one week later he coughed up a blood clot and from then on the left lung rapidly expanded.

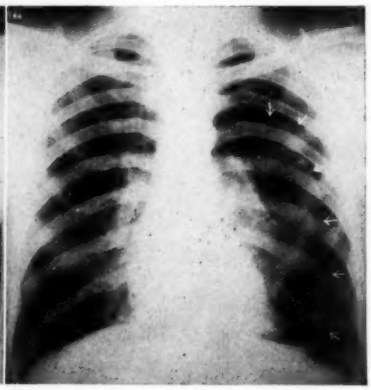

Fig. 7. Traumatic pneumothorax from penetrating wound of the chest. Note collapse of the lung without evidence of hemorrhage into lung structures or pleural cavity.

Massive (Atelectatic) Collapse of the Lung.—Another very interesting condition which sometimes follows trauma to the chest or other portions of the body is massive idiopathic atelectasis (Fig. 8). This is a condition first described by W. Pasteur, in association with diphtheritic paralysis of the diaphragm and later shown by the same author, to follow severe injury to the body or operative procedure. Sir John Rose Bradford, again called attention to the condition in association with severe wounds received by soldiers in the First World War. Massive (atelectatic) collapse of the lung has been well described by him as, "a condition, in which the lung, previously well aerated, suddenly, without apparent cause such as bronchial occlusion or pleural effusion, loses its air content and collapses."

The mechanism by which this is brought about is still not entirely understood. For some unknown reason there seems to be some inhibition

of the cough reflex which permits the accumulation of mucus in the larger bronchi causing obstruction. The entrapped air soon becomes absorbed by the circulating blood and the lung becomes atelectatic. The absorption of air in the lung still remains closely adherent to the parietal chest wall, and the contracting lung exerts traction on the chest wall drawing it inward. This force is also exerted upon the mediastinum and all of its structures and upon the diaphragm.

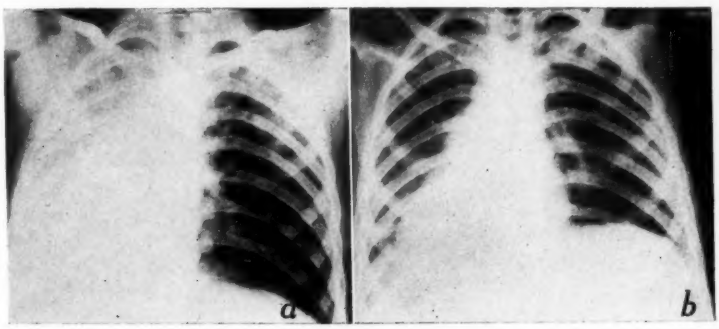

Fig. 8. *A.*—Massive (atelectatic) collapse of the lung following seven days after injury to spleen from an automobile accident.
B.—Complete reinflation after rolling patient upon the involved side and causing him to cough. This dislodges the plug of inspicated mucus and permits free entrance of air resulting in immediate reinflation of the lung under direct fluoroscopic vision.

collapsed lung is a natural sequence of bronchial obstruction; the condition which causes inhibition of the cough reflex permitting the collection of mucus in the bronchus still remains the mystery in the development of massive atelectasis.

Clinically the condition manifests itself in two forms, one in which the respiratory symptoms predominate and the other in which the respiratory symptoms are masked by severe pain elsewhere in the body. In any event, the respirations are rapid and there is fixation of the affected side of the chest and immobilization of the diaphragm. The affected lung is dense and airless giving the physical findings of consolidation. Blowing breathing is heard over the involved side due to transmission from the larger bronchial branches through the consolidated lung. The body temperature is elevated often as high as 103.5 and the pulse rate becomes rapid. There may even be a definite leukocytosis. So far the clinical picture is that of pneumonia, and there can be no doubt but that many of these cases have been diagnosed as pneumonia in former days. Certain other distinctive features are present, however, which indicate the true nature of the disease. In lobar pneumonia the volume of the lung remains the same, the air spaces are merely filled with exudate; in massive atelectasis there is a shrinkage of the lung volume due to absorption of the air. Since there is no associated pneumothorax, One of the most striking clinical features is the extreme displacement of the apex beat of the heart by traction from the shrinking lung.

All of these features are reflected in the roentgenogram; the lung on the involved side becomes dense and airless often fully as dense in appearance as the consolidation of labor pneumonia; there is narrowing of the affected side of the chest and closer approximation of the ribs, the heart and mediastinal structures are displaced toward the involved side and there is elevation and fixation of the diaphragm.

A number of years ago we were able to demonstrate that, merely by rolling such a patient upward upon the uninvolved side of the chest and causing him to cough, the obstructing mucus could usually be dislodged, resulting in immediate reinflation of the lung.[4,5] In our experience this has always been successful where the obstruction was due to mucus. It may be relied upon to cause reinflation unless there is some developmental anomaly of the bronchus or some organic bronchial occlusion such as bronchiogenic carcinoma. Bronchoscopy is not necessary or desirable unless this method has been tried and failed. Where this occurs, you may be sure that some other organic lesion is the cause of the bronchial obstruction, not merely the ordinary post-traumatic type of idiopathic atelectasis.

Injuries to the mediastinum from external

trauma are rather rare. They are confined almost entirely to penetrating wounds, especially gunshot wounds which traverse the chest from side to side. In our experience wounds of the but in which trauma is exerted from within. These are fewer in number and more limited in scope. Most common in this group are the conditions which result from changes in intrathoracic

Fig. 9. Progressive spontaneous pneumothorax following exertion showing almost complete collapse of the lung. Process of collapse was slow but continuous requiring more than an hour to become complete. Spontaneous pneumothorax is usually due to rupture of an emphysematous bleb.

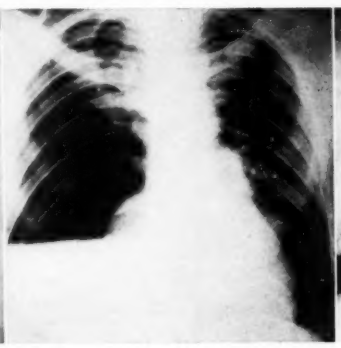

Fig. 10. Spontaneous hemopneumothorax with complete collapse of the lung. Hemorrhage is a very unusual complication of spontaneous pneumothorax. Three days after this examination about 2 a.m. before he could receive medical attention he suddenly became extremely dyspneic and cyanotic and died. On opening the chest at autopsy large amounts of air under great pressure escaped from the pleural cavity. There was no evidence of fresh bleeding and diligent search failed to reveal either point of bleeding or the point from which pressure pneumothorax originated. Death was probably due to acute pressure on the great vessels.

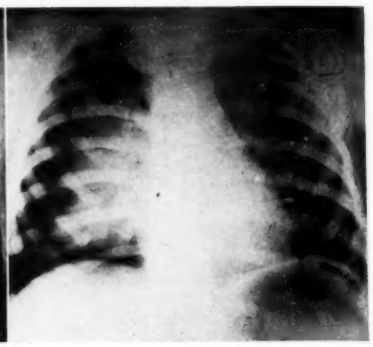

Fig. 11. Pneumothorax and atelectasis following injury to the lung from removal of a cylindrical glass bead from the right main stem bronchus. A sharp broken corner of the bead caused laceration of the lung during bronchoscopic removal. Note the consolidated collapsed lung from atelectasis and the free air in the pleural cavity.

mediastinum such as this contributed largely to the fatal cases of gunshot wounds of the chest.

Diaphragmatic damage usually results either from severe crushing injuries to the chest in which the abdomen is compressed or from lacerations or stab wounds involving the diaphragm. Such injuries may not be apparent immediately after trauma but may develop suddenly even weeks later on slight exertion which may even be fatal.

Effects of Internal Injury

The respiratory organs may also be subjected to trauma from within.

B. Effects of Internal Injury (Trauma from Within).
   1. Changes in Intrathoracic Pressure;
      (a) Spontaneous Pneumothorax,
      (b) Mediastinal Emphysema.
   2. Aspiration of Foreign Bodies—Laceration of Lung Structures.
   3. Instrumentation—Bronchoscopy.

Effects of Internal Injury—Changes in Intrathoracic Pressure

Spontaneous Pneumothorax.—Next we come to a group in which there is no external injury pressure due to exertion. Heavy lifting or other muscular exertion may cause rupture of the lung with spontaneous pneumothorax and pulmonary collapse (Fig. 9). At times this may follow apparently trivial exertion; it is usually accompanied by sudden sharp pain in the chest and shoulder, running down the arm, and there may be dyspnea depending upon the degree of collapse of the lung. Spontaneous pneumothorax of this sort usually results from rupture of a pleural bleb. Ordinarily absorption of the air occurs within a few weeks and normal function is reestablished. Occasionally, however, even several days after the original collapse, a double check valve may develop at the point of pleural injury, resulting in pumping air into the pleural cavity under great pressure. The pressure pneumothorax thus developed may become so great that death results from pressure on the great vessels.

Roentgenographically the pneumothorax thus produced does not differ in any way from any other pneumothorax; the peripheral zone of the chest is devoid of lung markings and the edge of the lung can be plainly visualized. The develop-

ment of pressure pneumothorax is evident in the roentgenogram by the extreme displacement of the heart and mediastinal structures to the opposite side due to excessive air pressure in the pleural cavity. Hemorrhage is very rarely associated with spontaneous pneumothorax. It usually means very extensive injury to the lung and may be fatal (Fig. 10).

Mediastinal Emphysema.—Occasionally rupture of the lung into the interstitial tissue may result in interstitial pulmonary and mediastinal emphysema. This is an extremely rare condition. It usually causes little trouble and the air is rapidly absorbed. It manifests itself roentgenographically by the appearance of air in the mediastinum, forming a halo about the cardiac shadow at times extending into the neck.

Aspiration of Foreign Bodies—Bronchoscopy.—Foreign bodies, aspirated into the respiratory tract, may puncture the lung, resulting in pneumothorax; or injury may be done in bronchoscopic attempts at removal (Fig. 11). Such injuries may prove serious and death may ensue. Injury from instrumentation is very rare owing to the skill of the modern bronchoscopists. Cases of this sort are not so much the concern of clinicians or general surgeons, however.

Influence of Trauma on Production of Bacterial Diseases of the Lung

C. Influence of Trauma in Producing Bacterial Diseases of the Lung.
1. Traumatic Pneumonia,
2. Pulmonary Tuberculosis.

Traumatic Pneumonia.—Roentgen examination would seem to indicate that this condition occurs much less frequently than is generally supposed. A careful distinction must be drawn between actual pneumonia caused by infection and interstitial hemorrhage due to trauma. Others feel that this condition seen after trauma constitutes a true pneumonic infection.[1,8] In the roentgenological service of the St. Louis City Hospital over a ten-year period in which a great number of chest injuries occur, less than half a dozen cases have been noted in which a definite relationship could be established between trauma to the chest wall without fracture of a rib or hemorrhage into the lung or pleura, and subsequent pneumonia.[6]

When pneumonia does follow trauma to the chest, it comes on from one to seven days after injury. It resembles lobar pneumonia in every respect both clinically and roentgenographically, with high fever, rapid pulse, and leukocytosis; showing roentgenographically dense consolidation closely limited to one or more lobes. Under such circumstances it is logical to suppose that, if trauma had anything whatever to do with the pneumonic process it must have been due to a lowering of bodily resisting power, permitting infection which already existed to produce disease.

Pulmonary Tuberculosis.—In the relationship of pulmonary tuberculosis and trauma a similar statement can be made. In a survey made a number of years ago of 500 consecutive patients admitted to Koch Hospital for pulmonary tuberculosis, only thirty-two instances were found in which there was any history of associated trauma. In more than 50 per cent of these the injury was to an extremity or remote portion of the body; the time elapsing between injury and subsequent diagnosis of tuberculosis varied from one week to eighteen years; in no instance was the patient known to be free from tuberculosis before the injury. No evidence was obtained to indicate that trauma played any definite part in the development of pulmonary tuberculosis in an individual previously free of the disease. In an individual in whom pulmonary tuberculosis already existed, it would seem possible that trauma to the chest sufficiently severe to produce injury to the lung might cause a breaking down of bodily resistance against the disease and thereby permit the spread of the infection.[7]

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THE POSTPARTUM HANDLING OF LATE TOXEMIA OF PREGNANCY*

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HYPERTENSIVE toxemia of late pregnancy will be designated as toxemia throughout this discussion in order to avoid needless repetition of an awkward term and inasmuch as none of the other toxemias of pregnancy will be considered.

Paradoxical as it may at first appear, it is through postpartum examinations of the toxemic patient that toxemia may be prevented. Although the etiology of toxemia is a problem which remains unsolved, three widely accepted concepts pertaining to the subject are:

1. That toxemia emanates from more than one source—an idea which has led to classifications none of which are adequate.
2. That the identification of the source of a *particular* toxemia at the time of its existence is possible only within certain limits.
3. That *some* of the toxemias have a common factor with the persistent sequelæ of toxemia, this common factor being the process or processes initiating vascular hypertension.

Contrary to older opinion which considered toxemia to be essentially free from persistent effects, from one-third to one-half of all women who suffer from toxemias, according to the observations of numerous more recent investigators,[1, 2, 4, 5, 7, 11] are left with residual symptoms. Unfortunately, also, an older terminology has been retained which implies that pathological processes distributed generally throughout the body are confined to the kidney. Thus we find in the most recent classification of the toxemias, that of the American Committee on Maternal Welfare, the condition "chronic vascular nephritis," or "nephrosclerosis" listed under renal disease. While it may be admitted that the kidney is peculiarly susceptible to the localization and the progression of the process, an underlying pathology has been established as involving in various degrees the entire arteriolar system—namely arteriolosclerosis. "Arteriolosclerotic toxemia," the term used by McKelvey, would therefore seem to be more descriptive. Also, it suggests a concept which leads naturally to a wider consideration of the vascular system in relation to the toxemias. Considering that in the population approximately 40 per cent of women are potentially hypertensive, the postulation seems reasonable that a fair number of the toxemias originate in a deficient vascular system rather than in the products of conception. The duration of a toxemia also becomes more significant. Recently Chesley and his coworkers have shown that in the 53 per cent of 466 women who had hypertension after five years or more following nonconvulsive toxemia, approximately 80 per cent had had a duration of the toxemia for only three weeks. From their studies they estimate that prompt delivery of the toxemic patient whose disease appeared in the last trimester of pregnancy would have lowered the incidence of residual hypertension from 53 per cent to 13 per cent. Serious consideration, therefore, must be accorded to the length of time a toxemia may be allowed to continue, particularly in view of the uncertainty in differentiating the late toxemias at the time of their existence.

The etiology of arteriolosclerosis is unknown except for the relationship to family history. A description of the pathology would serve no purpose here, except to state that the process begins with spasm of the arterioles which, after varying periods of time, results in a permanent and progressive proliferation of the intimal walls and sclerosis of the media. The effect of the lesion is constriction of the lumen of the smaller arterioles, which produces an increase in vascular field resistance. A consequent increase in blood pressure is needed to overcome this resistance. As Bell has pointed out, arteriolosclerosis has nothing in common with arterio- or atherosclerosis.

The clinical picture of arteriolosclerosis resulting from toxemia differs in no way from that of the mild, severe, or malignant essential hypertension as found in the male or the nulliparous female. Variations as to the degree of intensity, rapidity of progression, presence or absence of albuminuria, and terminal effect are the same. It is known that arteriolosclerotic hypertension

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when once established does not recede, and may progress with varying speeds to three terminations—renal, cardiac, or cerebral, and, as such, this disease is a major medical problem.

What is of first importance to the obstetrician, however, is the effect of pregnancy on the progress of an established arteriolosclerosis. In other words—what are the remote effects of residual toxemic arteriolosclerosis? Among the first of the statistical studies pertaining to the subject which are becoming increasingly available, are those of Peckham and Stander from the Johns Hopkins Hospital. These show that the ten-year death rate of patients with hypertension following toxemia is 25 per cent, as compared to an expected mortality of 7.5 per cent in the Standard Insurance Mortality Tables for women of the same age. This then would represent a death rate of 17.5 per cent due to toxemic sequelæ. If one or more pregnancies, however, had been undergone by women in this hypertensive group, the mortality rate increased to 47 per cent, representing then a 40 per cent death rate due to pregnancy superimposed on toxemic residual hypertension. Figures now in preparation at the University of Minnesota Hospitals, by Haugen, indicate essentially the same results—allowances being made for racial differences.

Chesley and his co-workers in their recent study also show clearly the effect of subsequent pregnancies on the incidence of hypertension in a group of living women five years or more after nonconvulsive toxemia.

Pregnancies Subsequent to Toxemia	Percentage Followed by Hypertension
None	44.7
One	
Normal	11.7
Toxemic	64.6
Two	
Normal	8.0
One toxemic; one normal	50.0
Both toxemic	80.0

The fruitfulness of the subsequent pregnancies was also striking. In 200 post-toxemic patients with 247 pregnancies the maternity mortality was 2 per cent. In 203 pregnancies progressed as far as twenty-four weeks 90 (45.8 per cent) were toxemic and 108 (53.2 per cent) were nontoxemic. Two hundred forty-seven pregnancies resulted in 190 (77 per cent) live births, 44 (18 per cent) in abortions and 13 (5 per cent) in stillbirths. Their data further show that the interval between the toxemic pregnancy and the subsequent pregnancy has no bearing on the recurrence of toxemia or the establishment of hypertension.

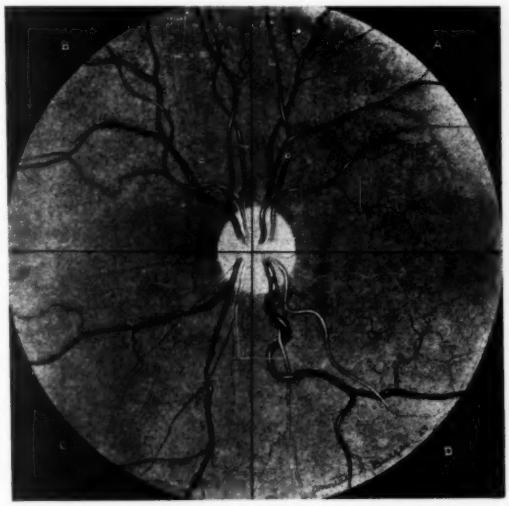

Fig. 1. Composite drawing illustrating various types of retinal vascular lesions. (From Friedenwald.)

A. Normal eye-grounds.
B. Senile arteriosclerosis without hypertension.
General caliber of arteries normal; arterioles no lesion.
Moderate arteriovenous pressure.
Larger arterial branches show leading and visibility of walls.
C. Arteriosclerosis with hypertension.
General reduction in caliber of whole arterial tree.
Arteries straight, branch at acute angles.
Increased visibility of artery walls, disappearance of reflex stripe, leading present.
Marked arteriovenous pressure.
D. Arteriolosclerosis.
Larger arteries full and tortuous, coppery in appearance, widened reflex stripe.
Moderate arteriovenous pressure.
Smaller arteries branch at right angles.
Terminal arteries irregular tortuosity, visible walls, silver wire change.

This, then, is a part of the sordid picture of the remote effects of toxemia. Does importance of postpartum examination need more emphasis?

All hypertension must not be considered as arteriolosclerotic in origin and this discussion implies that other causes than arteriolosclerosis are absent. Inasmuch as the diagnosis of hypertension is dependent on the blood pressure determinations, a few elemental considerations may be permitted. General opinion has set the

limits of systolic and diastolic readings for hypertension at 140 and 90 respectively, with the diastolic level being taken at the change of note. Authoritative opinion also attaches greater significance to the diastolic level of blood pressure, it being postulated that an elevation of the diastolic pressure is equivalent to twice that elevation of the systolic pressure. Hypertension is considered permanently established if present six weeks after the end of pregnancy, and its absence after this time must be proved by careful and repeated examinations. Albuminuria is generally not present and kidney functional tests usually are normal. Albuminuria when present, disturbed kidney function, and cardiac hypertrophy are manifestations of more advanced arteriolosclerosis.

Another method of study to establish the diagnosis of arteriolosclerosis is through the use of the ophthalmoscope. Although ophthalmoscopy offers no technical difficulty, proper interpretation requires considerable experience and practice. However, every practitioner of obstetrics should be sufficiently familiar with the eye ground examination to appreciate the help of the well-trained ophthalmoscopist. The accompanying diagram of Friedenwald has been found to be most helpful. *

The cold pressor test of Brown is considered by some as a valuable adjunct to the study of arteriolar disease. On the other hand, there are those who believe the test is more meaningful of pain tolerance. The test is easy and simple to do and its final value will be found in the results of its wider application. The technique as described by Hines, briefly is as follows: The patient is allowed from twenty to sixty minutes rest with the blood pressure cuff in position and a basal blood pressure reading is determined. The opposite hand is then immersed in ice water to a point just above the wrist. Blood pressure readings are then taken at the end of thirty and sixty seconds, the highest of the two readings being taken as an index of the response. The hand is removed from the ice water and another reading is taken at the end of two minutes, and thereafter every two minutes until the blood pressure returns to the basal level. In normal patients the blood pressure usually returns to the basal level within two minutes after the hand has been removed from the cold water. Hyper-reactive response is considered present if the systolic increase above the basal level is 25 millimeters or more, and if the diastolic is 15 millimeters or more—emphasis being placed on the diastolic level. If a maximal reading is above 145 systolic and 90 diastolic, the subject is considered to have a hyper-reactive vasoconstrictor mechanism—a reaction suggestive of arteriolosclerosis tendency.

Three conclusions would seem manifest:

1. Arteriolosclerosis is frequently caused by toxemia, the duration of which may be significant.

2. Arteriolosclerosis is considered established if hypertension is present six weeks after a toxemia.

3. With arteriolosclerosis established, serious consideration must be given to the prevention or interruption of subsequent pregnancies.

*See preceding page.

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THE CLINICAL RECOGNITION OF CORONARY DISEASE*

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THE clinical recognition of coronary disease must be prompt and accurate if its victims are to be given proper treatment and sound advice. The descriptive terminology used must be correctly chosen—first, to clarify the physician's thinking, and second, to present to others a true word picture of the condition present. The commonly used terms such as "angina pectoris," "coronary sclerosis," "coronary thrombosis," and "cardiac infarction" are not interchangeable. Each has its own place and correct usage, and must be so employed if one is to say what he means and mean what he says. In dealing with a problem of coronary disease, the habit of thinking it all the way through, in contrast to an immature decision unsupported by adequate investigation, will pay big dividends in a better quality of work and satisfaction that comes only from work well done. If one is to avoid the pitfalls in diagnosis that lurk in the problem of coronary disease, he must do some thinking in advance, develop a plan of action, and train himself in a routine of procedure.

A detailed and exact history is critically important, and must be followed by a thorough physical examination, which may show surprisingly little regarding the heart but must be done for the differential diagnosis. Laboratory procedures should include the hemoglobin estimation, leukocyte count, and sedimentation rate. An electrocardiographic record, and a six-foot chest x-ray are also essential. It is impossible to do careful, complete, and exact work in the diagnosis of coronary disease without the help of the electrocardiogram. In differential diagnosis one must use various types of laboratory and x-ray procedures as they are indicated in order to arrive at the correct diagnosis; otherwise, one would be guessing.

Three especially important phases of the problem of coronary disease have been selected for discussion from the standpoint of diagnosis. They are coronary sclerosis, cardiac infarction, and angina pectoris. Bell, in his latest textbook of pathology, states that coronary sclerosis consists of intimal atherosclerosis with calcification. The calcified, pipestem arteries often found in the very elderly, as a result of the aging process, do not produce important symptoms if the lumen of the vessels is not diminished. The ability of this coronary artery to dilate, however, is lost, so substernal discomfort and oppression can occur when unusual demands upon the heart call for more blood than the sclerosed vessels can supply. This situation probably occurs rarely in the very elderly because physical activities are reduced gradually over a period of time as age increases. The electrocardiographic record of these people may often be normal, or nearly so, or it may show bundle branch block, or changes in the conduction system within the musculature of the ventricles. These changes are usually associated with myocardial sclerosis and are not necessarily immediately dangerous.

The group showing intimal atherosclerosis with narrowing of the lumen is a greater problem. These changes occur at a much earlier age, usually in the late forties and fifties, and more often in men than in women. The intimal changes reduce the lumen of the vessel involved and materially diminish the volume of blood that can pass through. Varying degrees of anoxemia of the heart muscle results, depending upon the demand for blood at any given time. As this condition progresses the patient notices substernal distress in activities that formerly were done with ease. The distress comes commonly after meals, followed by exercise such as walking. It is produced or aggravated by walking against a cold wind, especially when carrying something. This peculiar distress is frequently associated with gas after meals, and belching often gives complete temporary relief. Recent work, in which small balloons were introduced into the lower esophagus and upper stomach and inflated, suggests that a vagal reflex from the upper portion of the gastro-intestinal tract may initiate and aggravate the symptoms of coronary sclerosis.

Patients with coronary atherosclerosis usually lose weight, the systolic blood pressure often drops steadily to 100 or below, and the sphere of

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their physical activities with comfort slowly but steadily narrows. Unless there has been a preceding hypertension with a resulting dilatation and hypertrophy, these patients do not show appreciable cardiac enlargement. Some recent publications claim that coronary atherosclerosis alone is responsible for decisive cardiac enlargement on the basis of hypertrophy. This is not proved so as to be accepted. The electrocardiogram may show little except T-wave flattening, or inversion in the first lead, or the first and second leads, indicating left ventricular muscle damage. If there has been a preceding hypertension, the electrocardiogram will show left axis deviation and chronic left ventricular strain. This pattern as described by Barnes consists of a definite depression of the S-T segment in the first and second leads in addition to the T-wave inversion. Auscultation frequently reveals nothing. The blood and urine may also be normal, except for a moderate anemia. As the vascular condition progresses, an important and ominous development is left ventricular failure. This is evidenced by attacks of nocturnal dyspnea (cardiac asthma) in which one or more times a night the patient is suddenly awakened from sleep with a sense of suffocation, shortness of breath, and tachycardia that compels him to quickly assume the upright position in bed or out of bed. The history of substernal distress on effort, the electrocardiographic record, the gradual fall in blood pressure, the weight loss, and the absence of hypertrophy, unless there has been a preceding hypertension, and symptoms of left ventricular failure should enable one to make the diagnosis of coronary atherosclerosis.

Cardiac infarction commands interest and attention because of its prevalence, its dramatic occurrence, and its tragic possibilities. Failure to diagnose this condition when it is present can be fatal to the patient. To say it is present when it is not is cruel and unfair. Errors result from not using the electrocardiogram, placing too much reliance on history alone, and neglecting a thorough investigation. A more regrettable type of error is misinterpreting the electrocardiographic pattern of chronic left ventricular strain as being that of anterior infarction, the Q_1 T_1 pattern described by Barnes. In this instance cardiac infarction is said to be present where it does not exist and the patient is subjected unnecessarily to a strict six months' régime. The Q_3 T_3 pattern shown by Barnes to be characteristic of posterior infarction is not recognized as commonly as it should be, so still more errors in diagnosis occur.

Cardiac infarction is a vascular accident usually based on some type of thrombus formation within the coronary vessels, occurring predominately in male patients over forty years of age. It is now being frequently found in patients under forty years. Coronary atherosclerosis is its commonest precursor, but in the earlier ages intimal or subintimal changes occur, which by contiguity are responsible for the thrombus formation on the intimal lining of the coronary artery. These intimal or subintimal changes occur in association with potent sources of infection (coronary arteritis), hemorrhages as the result of chest injuries, or unusual strenuous physical exertion. Paterson of Ottowa thinks intimal capillary hemorrhages are caused by capillary fragility associated with persistant or transitory hypertension, or from vitamin C deficiency. When the coronary thrombus, whatever its cause, suddenly occludes a sufficiently large vessel, cardiac infarction occurs. Thrombosis precedes infarction by minutes, hours, or days—a very important legal point. Coronary thrombosis in itself may or may not produce important symptoms depending entirely upon its rate of formation, the size of the vessel involved, and whether or not there is sufficient time for collateral circulation to develop. Under certain conditions cardiac infarction can occur without thrombosis.

In the typical case a sudden, severe pain occurs beneath the lower third of the sternum causing the patient to become profoundly weak, ashen gray and break out in a cold sweat. The pain may be referred to the left upper anterior chest, the left shoulder and down the left arm to the wrist, or to the upper abdomen. The pain is not steady, but is paroxysmal in character and progressive in severity, usually reaching a maximum by a step-like process in two or three hours, when it gradually subsides to recur off and on with decreasing severity for the next two to five days. The blood pressure usually falls sharply, but occasionally is elevated. Vomiting may occur. Unfortunately all cases are not typical, for example those occurring without pain. Whenever one suspects cardiac infarction, it is wiser to assume its presence until a definite diagnosis is established. A routine procedure that

can be recommended when infarction is suspected is as follows: Keep the patient in bed at absolute rest; take the temperature every four hours; get a daily leukocyte count and sedimentation rate for five days; have an electrocardiographic record made at once and repeat every 48 hours. This will bring out the usual small temperature rise of not over 100 degrees, the leukocytosis of from 10,000 to 20,000, and the sharp rise in the sedimentation rate of between 40 and 100 mms. in one hour, together with the characteristic progressive changes in the serial electrocardiograms. If this method is followed, the chance of overlooking cardiac infarction is very small.

In differential diagnosis, pericarditis, gall-bladder disease, perforation of an abdominal viscus, cardiospasm, pulmonary infarction, and massive collapse of the lung, must and can be ruled out if they are kept in mind.

Angina pectoris is the stumbling block of diagnosis and the catch-all for anterior chest pain in men over forty years of age. Every left anterior chest pain is not angina pectoris. Spondilitis, myositis, pleurisy, herpes zoster, hysteria, focal infection, and other conditions can cause anterior chest pain. It has been said, "The farther the pain is away from the mid-sternal line, the less likely is the cause to be in the heart." Angina pectoris is a symptom complex so definite that it can be considered almost a disease entity. Levine says, "A patient either has it or he does not have it." All qualifying terms of severity that can be used in relation to angina pectoris serve to increase the confusion of the situation rather than to clarify it. White in his textbook, "Heart Disease," defines it as "A paroxysmal sensation of oppression in the thorax, usually under the upper or middle sternum, brought on by exercise or excitement, persisting for a few minutes, and frequently radiating to the arms." Many observers believe there is a definite emotional element to angina pectoris associated with angiospasm and anoxemia in contrast to the discomfort resulting from the temporary, insufficient blood supply in response to effort found in coronary atherosclerosis. The attacks of angina pectoris are characteristically unpredictable —a situation that provokes an attack today will not produce one next week. There is no single, generally accepted explanation of the trigger mechanism that produces the attack, but it is intimately and regularly associated with heart muscle anoxemia. Some contend the emotional production of adrenalin is the exciting factor, and cite as proof the relief following x-ray therapy over the adrenals. While 95 per cent of the cases of angina pectoris show disease of the coronary arteries or their ostia in the aorta, at least 20 per cent exhibiting these same changes do not have the symptom complex of angina pectoris. Angina pectoris actually is a functional state, because there are no organic changes characteristic of it.

The diagnosis is made on the characteristic clinical symptom complex of paroxysmal, unpredictable substernal pain, sometimes radiating to the arms, lasting only a few minutes, but so severe that it causes its victim to stop in his tracks, scarcely daring to breathe or move a muscle, in association with emotion, excitement, or physical effort. In many instances it produces the ghastly feeling of dissolution and impending death. There should be no difficulty in recognizing it or differentiating it from its imitators, when the term angina pectoris is properly used in the light of our present knowledge of coronary artery and heart disease. If we are not willing to reserve the term angina pectoris for this small group showing this typical symptom complex in relation to emotion and excitement, as well as effort, irrespective of the presence or absence of associated coronary pathology, then the term had better be discarded entirely just as we discarded the term "Bright's disease" for nephritis, as the various individual types of nephritis became recognized and Bright's disease was separated into its component parts. Because of the universal dread and hopelessness associated with the term angina pectoris in the minds of the laity and the promiscuousness and carelessness with which the term is frequently used by the profession, it is necessary to use the greatest exactness and care in the use of the term or to discard it entirely.

In conclusion, the following points can well be emphasized:

1. The three important phases of the problem of coronary disease, i.e., coronary atherosclerosis, cardiac infarction, and angina pectoris, have characteristic symptoms or findings, or both, that differentiate them from each other and from the conditions which simulate them.

2. Exact diagnosis in coronary disease is not consistently possible without the free use of the electrocardiogram correctly interpreted.

3. The descriptive terms used in coronary disease are not interchangeable.

4. The daily leukocyte count and sedimentation rate, the four-hour temperature determinations for five days, together with forty-eight hour serial electrocardiograms, is a strongly recommended procedure in the diagnosis of cardiac infarction.

5. When one suspects the possibility of a cardiac infarction, treat the patient as such until it has been proved not to be present.

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THE ROLE OF DRUGS IN THE CLINICAL MANAGEMENT OF CORONARY DISEASE*

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THE clinical management of coronary disease may be classified as: hygienic, medicinal, surgical and roentgenological. Only drug therapy is under consideration in this paper, but undue emphasis on medicinal management is not intended. Many patients having coronary disease may be treated through the entire course of their disease with the use of little or no medicine.

At the present time the physician is handicapped in treating coronary disease because the functional disturbance is neither satisfactorily nor completely explained by any theory. The symptoms of coronary disease are generally considered as due to a decrease in the flow of blood through the coronary arteries, caused by structural changes or spasm in these arteries. Except in syphilis, no drug now known has the power to alter already existing structural changes in the coronary vessels.[20] The use of drugs, then, must be limited to those designed to control the symptoms of the disease and to prevent complications. Some drugs are thought to accomplish this by actually dilating the coronary vessels. Of these, the nitrites and xanthine compounds are commonly used.

The nitrites are vasodilators of all peripheral arterioles, both systemic and coronary. The dilation of the systemic arterioles results in a readjustment of the circulation, providing a more favorable relationship between cardiac work and coronary blood flow, while the action on the coronary vessels increases coronary blood flow and lessens myocardial anoxemia. Essex, measuring the coronary blood flow by means of a stromuhr in trained dogs, found the nitrites to increase coronary blood flow from 100 to 300 per cent.[9] Clinical observers and other animal investigators are in fair agreement.[19,21,25,30]

The action of nitrites is of short duration, two to seven minutes,[9] and in other than those suffering from angina of effort, such short effect is not sufficient to be helpful. They have no direct action on pain, and are not indicated in cases of thrombosis. They are not habit forming, and tolerance for them does not develop.[20] They are most effectively used at the earliest indication of an attack, rather than after the pain is well established.

The xanthine preparations, compounds of theocalcin, theobromine, and theophylline, have long been more or less accepted as potent dilators of the coronary arteries. The reports of investigators, both clinical and those using animal experimental methods, were, until quite recently, almost uniformly favorable.[14,15] In recent years, however, although many papers still report favorable results from their use in coronary disease, and on their effect on the coronary blood flow

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in animals, a number of paper have appeared that report the opposite results.[6,7,9,10,11,16,17,18,20,21,23,25,27,28,30] Gold and his co-workers recently reported the result of a clinical study based on the observation of the effect of theophylline ethylenediamine (aminophylline) on a hundred well controlled cases and reported this compound to have no appreciable effect on the disease that was not equally obtained when placebos were administered.[18] On animals, Essex, Wegria, Herrick, Mann, Green and others have reported actual coronary dilation from the use of xanthines.[10,14,21,22] Smith reported that after ligation of the coronary arteries in dogs, the administration of xanthines lessened the size of the resulting infarct and hastened its healing.[13] Gold, in similar circumstances, found no effect.[17] Davis and the author, experimenting on dogs, and using the hot wire anemometer method as devised by Anrep, were unable to obtain any appreciable increase in coronary flow from the injection of theophylline ethylenediamine.[7]

The value of the xanthines has probably been overemphasized, but the conclusion that they have no value in coronary disease is not justified. They are diuretics, and they possibly have some effect on circulation other than that on the coronary vessels. This last needs further study.

In the care of patients with coronary disease one of the main objects is to avoid nerve tension and strain during the day and to make certain of satisfactory sleep at night. Such conditions may exist naturally, or they may have to be assured by medication. The sedatives as a group, are useful to this end. The most popular sedatives are the members of the barbital family, although others such as bromides and chloral are used. These compounds vary in potency, and the susceptibility of patients differ, so that dosages must be adjusted according to the individual's response. The quality of rapidity of action and recovery possessed by some barbiturates has no particular advantage in the treatment of coronary disease, as a more or less persistent mild depression is desirable.

The opium derivatives, such as morphine and pantopon, find their use in the treatment of coronary disease in those cases in which the vasodilators and sedatives will not sufficiently control pain, as in occlusion. In the angina of effort morphine should not be used, as in these cases the paroxysmal spasms may be frequent enough to result in habituation. The dosage of morphine to be given, when needed, should be large enough to control both the anxiety state and, when possible, the pain. Extremely large initial doses of morphine are not necessary or desirable. A quarter grain dose may not be sufficient, but it may be repeated at intervals until the desired effect is obtained.

The use of digitalis in coronary artery disease has received much attention. The experimental and clinical literature is inconclusive, some report vasoconstriction, others vasodilation, and others no effect. An investigation on this subject made by Davis and myself on dogs, showed that digitalis in the range of therapeutic doses had no effect on the coronary blood flow.[7] Digitalis did increase the strength of ventricular contraction sufficient in our opinion to make its use contraindicated in the case of coronary occlusion, until after such time as the infarct has had ample opportunity to heal. This stimulation of strength of ventricular contraction caused by the use of digitalis, might in some cases, induce cardiac rupture.[7] Gold, however, minimizes this danger.[20]

Clinically, Gold and his collaborators, in a study of one hundred twenty patients with coronary disease, came to the conclusion that it is unlikely that digitalis causes angina.[19] The presence of coronary disease, except occlusion, need not deter one from using digitalis when needed. When edema is present and in those suffering from attacks of paroxysmal dyspnea, the use of diuretics such as salyrgan or mercupurin in conjunction with digitalis may prove very helpful.

Except in syphilis, the use of the various iodides in the treatment of coronary disease is not supported by any experimental or clinical evidence.

Trichlorethylene has been reported to be of use in the relief of pain in coronary sclerosis and in the anginal syndrome.[26,32]

Oxygen has long been used in the relief of pain of coronary occlusion. Recently Boland claimed excellent results from its use in 100 per cent concentrations.[3,4,5,24,31]

Numerous tissue extracts have been reported by various investigators to be potent dilators of the coronary blood vessels, but at the present time this work has not been sufficient or well enough controlled to warrant their general use.[12,29]

Caffeine, coramine, metrazole, intravenous dextrose, epinephrin and pitressin have been used in the treatment of coronary disease, particularly in the cases of shock and pulmonary edema. The action of most of these drugs on the coronary blood vessels is not definitely known. However, metrazole and coramine have been reported to dilate coronary blood vessels and epinephrine in small doses is known to be a coronary dilator, but in large doses causes coronary constriction.

Pitressin is a very potent coronary constrictor and should not be used in this disease.

Summary

1. The place of drugs in the clinical management of coronary disease has been discussed.

2. The action of several drugs, both as to their clinical effect in treating patients with coronary diseases, and the experimental evidence of their action on coronary flow, has been cited.

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RETRODISPLACEMENT OF THE UTERUS*

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THE term retrodisplacement refers technically to all conditions of retrocession, retroflexion, or retroversion of the uterus. By the common usage of most authors and in this paper, it designates the frequently encountered combined retroversion and retroflexion or the retroflexioversion of some writers.

In the preparation of this paper, the writer has analyzed the charts of 148 consecutive patients operated upon for surgical correction of this condition in St. Luke's and St. Mary's Hospitals, Duluth, and also sent a questionnaire to the

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patients concerned to determine their judgments as to the effectiveness of the treatment in relation to amelioration of symptoms.

History

Retrodisplacements of the uterus were recognized in the time of Hippocrates and were even then treated by means of crude pessaries. Devanter, in 1716, described retrodisplacement in pregnancy. Hunter, in 1776, made an unsuccessful attempt to replace an incarcerated four months pregnant uterus. The woman died, and at autopsy it was necessary to sever the symphysis with a saw in order to remove the uterus from the pelvis. Hodge, in 1860, and Albert Smith at about the same time devised the modern pessaries which bear their names. From 1888 to 1890 operative procedures for correction of retrodisplacement became highly developed and began to lead to many abuses.

Etiology

The uterus is normally held in proper position by means of the support which it receives from the pelvic floor, particularly the endopelvic fascia. Its lateral motion is limited by the broad ligaments, and anteversion is maintained by the posterior traction of the sacro-uterine ligaments upon the lower uterine segment and the anterior traction of the round ligaments upon the upper corpus. Of great importance also is the downward pressure of the abdominal viscera upon the posterior-superior aspect of the corpus. The uterus is, of course, freely moveable within wide limits and is moved normally to a considerable degree by the distended bladder. Congenital or acquired loss to any great degree of any of these supporting forces allows the uterus to be forced into retrodisplacement, aided at times by an overdistended bladder, insinuation of a portion of the bowel between uterus and bladder and the sheer weight of an enlarged uterus in early pregnancy or during postpartum involution. Fundamental to the development of this condition is the fact that the pelvic architecture as regards the uterine supports as well as many other characteristics was designed so as to be more suited to the "all fours" than to the upright posture. This departure to the upright position is even more exaggerated in the woman with less than normal lumbar lordosis who has a nearly horizontal pelvic inlet.

Many authors who have covered large series of cases agree quite generally that about 20% of adult women have retrodisplacement of the uterus. This condition may be divided into two categories: congenital and acquired. Dannreuther[2] found in a series of 387 cases of retrodisplacement that 19 per cent were congenital.

Symptomatology

As to the symptoms arising from retrodisplacements of the uterus, there is a difference of opinion. According to Curtis,[1] Thielhaber in 1885 was the first to state that uncomplicated retrodisplacement causes no symptoms. This same author states that Sellheim and Von Jaschke in Europe, and Bovee, Baldy, Findley, Hirst and Plass in this country have expressed the same views. On the other hand, Graegert, Stroeckel, Meyer, Polak, Gellhorn, Curtis, C. Jeff Miller, Lynch and Crossen hold the opinion that retrodisplacement may if long continued lead to characteristic pathology in a definite sequence. For this reason, it may be advantageous to consider first the complications and frequently co-incidental pathology in order to better understand the symptoms associated with this condition.

The retrodisplaced uterus allows the ovaries to prolapse into the cul-de-sac and because of torsion upon the uterine and ovarian vessels with increase in venous pressure, there ensues a chronic passive congestion of the uterus and the ovaries and often the tubes as well. Large varicosities develop with great frequency in the broad ligaments and although study of 148 operative records in Duluth shows only five instances where there is mention of the presence of varices with retrodisplacement, nevertheless, I believe that we all see this complication frequently enough. Lynch[6] demonstrated broad ligament varices in 99 of 100 women operated upon for cure of retrodisplacement. The presence of the varices per se with pressure and anoxemia undoubtedly accounts for much of the pelvic discomfort experienced by most women with a retrodisplaced uterus. The congestion of the uterus often causes it to enlarge and the experience of observing a uterus involute dramatically after correction of retroversion by pessary or operation has been observed frequently. The added weight of the congested uterus must contribute to the sensation of pelvic pressure, and the partial anoxemia of a muscular organ would

be expected to cause discomfort. Much the same mechanism must explain the backache so frequently present. The congestion is also accompanied by an overactivity of the cervical glands and makes leukorrhea a common symptom.

Interference with the blood supply to the ovaries is often manifested by congestive enlargement, tenderness and pain, and also by the rather frequent development of ovarian cysts. Twenty-four per cent of the Duluth series had ovarian cysts at operation. Ovulation pain, or the Middelschmertz of the German writers may be in some cases a manifestation of altered ovarian physiology due indirectly to retrodisplacement of the uterus with ovarian prolapse. I have observed two women with severe ovulation pain as the presenting and only symptom in which correction of the position of the uterus with a pessary led to cessation of the symptom, where removal of the pessary and recurrence of the retrodisplacement reinitiated the ovulation pain and where surgical correction was elected by each patient and gave complete relief.

One woman in the series reviewed was operated upon with preliminary diagnosis of ruptured ectopic pregnancy and a bleeding corpus luteum cyst containing 500 c.c. of blood was discovered together with the retrodisplacement. This marked disorder of ovarian function may have been partly brought about by the abnormal position of the uterus.

Retrodisplacement of the uterus is evidently capable of causing retrograde menstruation and by the same token may be a factor in the etiology of endometriosis.

Watkins[9] has demonstrated that introduction of methylene blue into the uterine cavity without pressure is followed by its appearance free in the pelvis in four of five cases. He showed that of eight patients operated upon for retrodisplacement in whom preliminary dilatation and curettage was performed, that each had from 5 to 60 c.c. of blood in the peritoneal cavity and blood was discovered dripping from one or both tubes in all eight. In another group of eight patients with retrodisplacement operated upon during menstruation, he found that all showed some degree of retrograde bleeding and endometrial cells were found in the pelvic blood of two. He found that of fifteen patients with dysmenorrhea and endometriosis, fourteen had retroversion.

The uterine congestion, angulation of the cervix, retrograde menstruation and altered ovarian function probably all contribute to make menstrual abnormalities common accompanyments of retrodisplacement. In the Duluth series, 24 per cent had dysmenorrhea mentioned in the interns' history, 19 per cent had menorrhagia, and 5 per cent had metrorrhagia.

A summary of the symptoms in the Duluth group of 148 cases as taken from the interns' histories is as follows:

	Per cent
Backache	49
Low abdominal pain	44
Limited to RLQ in 19%	
Limited to LLQ in 4%	
Dysmenorrhea	24
Menorrhagia	19
Pelvic weight or pressure	15
Leucorrhea	12
None mentioned	8
Fatigueability	1

Mittelschmertz, Dysuria, Habitual abortion, Nervousness, and Nausea and Vomiting with Menses, 1 case each.

In a comparable group of 145 cases operated upon by Curtis and Gardner[5] they found:

	Per cent
Abnormal uterine bleeding	65
Dysmenorrhea	56
Low abdominal discomfort	47
Backache	44

In their series, 94 per cent had associated pelvic disease.

In the Duluth series, the operative notes mention retroversion alone in 23 per cent leaving 77 per cent with associated pelvic pathology. However, in only three cases is *mention* made of coincident broad ligament varices while they were probably overlooked many times. It is common practice in Duluth to perform prophylactic appendectomy at the time of laparotomy, and of the 26 per cent in which appendectomy was the only other procedure noted, many of the appendixes were probably not pathological, although no accurate evaluation of this point is possible.

A summary of the operative findings is shown in the accompanying report.

The concealed complication which is usually present in symptomatic retrodisplacement is congestion.

It must be ever born in mind in approaching the subject of uterine retrodisplacement that the condition itself may be symptom-free and also

ASSOCIATED PATHOLOGY
148 Cases

	Per cent
Retroversion alone	23
with chronic appendicitis	26
with acute appendicitis	2
with single larger ovarian cyst	17
with small retention cysts	7
with prolapse and cystocele or rectocele	10
with rectocele and/or cystocele	10
with chronic salpingitis	10
with lacerated cervix	7
with fibroids or fibroid uterus	6
with endocervicitis	5
with broad ligament varices	2
with tubo-ovarian abcess	1
with endometriosis	1

that nearly all of the symptoms that might be ascribed to a retrodisplaced uterus can be produced by other disease sometimes entirely unrelated. All other types of pelvic disease must be differentiated from retrodisplacement of the uterus as well as low back sprain, chronic appendicitis, hemorrhoids, constipation, urological disorder, and referred pain from an intraspinal lesion.

The first appearance of retrodisplacement is frequently after pregnancy, and the onset of chronic backache from lumbo-sacral or sacro-iliac subluxation is likewise often during or after pregnancy, so that the two may exist simultaneously, and if care is not taken, may lead to confusion and inappropriate therapy. Findley[4] states that most postpartum backache is not due to retrodisplacement.

Dannreuther[2] states that "If a sacral backache can be relieved by such measures as unloading an obstipated colon, treatment of postpartum parametritis, fitting flat feet with suitable supports, eradication of remote foci of infection and orthopedic treatment to remedy abnormalities in the lower spine, even though a displacement of the uterus exists, the time to find this out is before a futile laparotomy and not afterwards."

The diagnosis of retrodisplacement of the uterus depends upon careful bimanual pelvic examination or combined recto-vaginal-abdominal examination and the finding of the corpus posterior to the long axis of the vagina or in the cul-de-sac. The bladder should always be empty at time of examination. Not too much weight should be placed upon the finding of the cervix pointing forward although this is definitely suggestive. Every patient with retrodisplacement of the uterus and symptoms that might be explained by it is entitled to a therapeutic test of correction of the position and maintenance with a pessary to determine whether or not her symptoms disappear and are therefore attributable to the retrodisplacement. Certainly, this is true before operative treatment is undertaken.

Therapy

The prophylaxis of retrodisplacement of the uterus largely resolves itself into the removal of uterine tumors which by their position and weight seem likely to pull the fundus backwards, and the proper handling of the postpartum uterus, as the majority of acquired retrodisplacements appear following pregnancy. To this end, the knee-chest exercise was used in the middle of the 10th century by Camper and described in 1701 by Devanter. It has become time-honored and widely used. Schauffler[8] in 1932 reported a controlled series of postpartum cases in which those who used knee-chest exercises for six weeks had an incidence of 47.2 per cent retrodisplacements, and those who did not, had an incidence of 34.5 per cent. Eichner[7] in 1937 presented a similar series with 22.7 per cent following use of knee-chest and 27.7 per cent without it. Moses[7], in 1939, presented a study of a series of 210 girls in a maternity home who carried out knee-chest exercises under supervision from the tenth to the forty-second day postpartum. A control group of 210 patients who did not use the exercise was compared. In each group, 35.2 per cent had retroversion at the end of six weeks. He found in 200 private cases who started exercises on the tenth day postpartum and who had any existing retroversion corrected and pessary inserted on the fourteenth day, that whereas 30 per cent required replacement, 50 per cent of these were cured by the end of six months, and only 14 per cent of the total group continued to have retrodisplacement. This figure compares very favorably to the 20 per cent of all women having retrodisplacement as found by Polak and Stacy in compiling large series from the literature, and it is the opinion of several authors that during involution an opportunity is afforded in many

cases to permanently correct a retrodisplacement that had existed long before pregnancy began. On the other hand, Findley[4] states that without appropriate therapy 100 per cent of patients with pre-pregnancy or intra-pregnancy retroversion develop it afterwards within four weeks. He states further that retrodisplacement first occuring during pregnancy has a 65 per cent chance of being cured by proper use of a pessary postpartum. He feels that there is no hope of curing retrodisplacement with non-surgical treatment except postpartum. He hints that retrodisplacements are quite common in sanitoria patients and that lying on the back and over-distention of the bladder postpartum contribute to the cause of this complication.

In skilled hands, there are relatively few retrodisplacements which cannot be replaced by bimanual technique. Not infrequently, the use of a tenaculum on the cervix with traction downwards will aid greatly in straightening out a retroflexed or retroverted uterus, and then by carrying the cervix along the hollow of the sacrum, it becomes much easier to grasp the fundus with the hand which is upon the abdomen. Occasionally, when only partial correction of the retroposition is possible, considerable aid may be had from placing a small pessary to maintain this partial correction and instructing the patient to take the knee-chest position. This procedure should, of course, be carried out with great care and judgment and the pessary removed if painful or if not successful in two or three days. In some instances, general anesthesia must be resorted to. Needless to say, at the final fitting the pessary should be adequately large to hold the uterus in position, but of such size and moulded to such shape as to avoid pressure ulceration of the vaginal mucosa. The pessary designed by Findley, shaped as the Albert Smith model but with soft rubber inserts at both ends is very convenient in that it causes little or no pain while being inserted.

Operative Treatment

Retrodisplacement can be considered as an indication for a replacement operation according to Wiley[10] only after consideration of the following axioms:

"First: A retrodisplacement may exist without symptoms, especially when found early or late in life. A symptomless retrodisplacement does not warrant surgical procedures.

"Second: Retrodisplacement may exist with symptoms, and the symptoms not be due to the retrodisplacement. Surgical procedures are indicated after extra gynecological conditions have been excluded, and the displacement and symptoms correlated.

"Third: Symptoms in a given case may be correlated with a retrodisplacement of the uterus; but non-operative treatment may relieve the symptoms. Therapy then becomes elective, and the choice of therapy becomes the prerogative of the patient. Usually a woman prefers operation to the continued, often ineffective, conservative treatment with pessary, knee-chest position, packing, et cetera."

Perusal of the literature demonstrates no unanimity of opinion as to the most desirable surgical technique for correction of retrodisplacement.

Olshausen, about 1880, was the first to perform a suspension operation, but his procedure has few advocates today. The Alexander Adams technique with shortening of the round ligaments through the inguinal canals has several warm advocates, but its use is somewhat limited because of the fact that it allows of very limited or no exploration of the pelvis and unless extended considerably, allows for no correction of associated pathology.

The Gilliam is the outstanding pioneer operation utilizing the round ligaments and of course has been modified by Ferguson, Simpson and Crossen to prevent a gap between the fundus and the abdominal wall. The Baldy Webster procedure seems to be generally in greatest favor, and particularly if associated with shortening of the sacro-uterine ligaments and advancement of the bladder towards the fundus offers one of the most effective and fool-proof means of suspension.

Anterior plication of round or broad ligaments or both, reefing of the round ligaments, defundation, verofixation and hysterectomy have their obvious indications.

Association of retrodisplacement with prolapse or cystocele or both suggests the use of interposition operation together with the added insurance of strengthening of the perineal body if necessary.

In the Duluth series under consideration, the procedures undertaken were as follows:

OPERATIVE PROCEDURES

For Correction of the Retrodisplacement	
Baldy Webster	102
Baldy Webster with shortening of utero-sacral ligaments	12
Hysterectomy	11
Anterior plication	9
Interposition	6
Gilliam	2
Coffee	2
Defundation	2
"Position corrected"	1
Replaced without fixation	1
	148 Cases

ASSOCIATED PROCEDURES

Appendectomy	66
Excision of ovarian cyst	29
Perinorrhaphy	27
Salpingectomy	14
Oöphorectomy	13
Sturmdorf	6
Myomectomy	6
Cautery	8
Ligation of broad ligament varices	5
Hemorrhoidectomy	5
Trachelorrhaphy	4
Colporrhaphy	4
Sterilization	4
Resection of presacral nerve	3

There was no operative mortality. These 148 operations were performed by thirty surgeons, one having performed twenty-one operations, another sixteen, two thirteen, two eleven and the rest of the surgeons each having done fewer operations.

Questionnaires sent to all 148 patients operated upon in the Duluth series inquired as to the nature of the pre-operative symptoms and the degree of relief obtained (complete, two-thirds, one-third or none). Each was asked whether to her knowledge the surgeon had made an attempt to correct the retrodisplacement prior to the time of operation; whether this attempt was successful; and whether, if successful, it had afforded temporary relief.

There have been 105 replies. Symptoms were listed as shown in the accompanying table.

The one patient who complained of urinary disorder was made worse and the one suffering from habitual abortion was not cured by operation.

The number of symptoms in each case varied from one to five. Considering all of the symptoms presented in a given case, the result for that patient was estimated on the basis of excellent, fair, poor, and failure, depending upon the degree of relief experienced as complete, two-thirds, one-third, or none. There were undoubtedly instances where the patient expected relief greater than such an operation could afford, but one should be free to assume that had the surgeon expected only partial relief as from backache caused by both retrodisplacement and low back sprain that he would have so informed the patient, and her expectations therefore would have been reasonable. One debated for some time before designating two-thirds relief as fair instead of good, but we must feel that only the expectation of excellent results would warrant a woman in submitting herself to the risk, expense, and loss of time attending a major operative procedure which was elective in nearly every instance. A patient who submitted herself to such a procedure and obtained only one-third relief would, I am sure, feel that the results were poor indeed.

SYMPTOMS

	No. Cases	Results		Unsatisfactory
		Satisfactory		
Backache	75	55	73%	20
Low abdominal pain	70	56	80%	14
Dysmenorrhea	43	35	81%	8
Menorrhagia	24	20	83%	4
Sterility	9	2	22%	7
Nervousness	5	2	20%	3
Dizzy spells	4	4	100%	0
Metrorrhagia	3	1	33%	2
Pelvic pressure	3	2	66%	1
Fatigability	2	1	50%	1
Leucorrhea	2	2	100%	0
Mittelschmertz	1	1	100%	0
Nausea with menses	1	1	100%	0

The results are presented with the full appreciation of possible inaccuracies of judgment because of limited data:

	Cases	Per cent
Excellent (or complete relief)	62	59
Fair (or two-thirds relief)	23	22
Poor (or one-third relief)	12	11.4
Failure (or no relief)	8	7.6

Accordingly it may be stated that results were satisfactory in 81 per cent and unsatisfactory in 19 per cent. There was one recurrence of retrodisplacement found elsewhere subsequent to operation in Duluth. Curtis and Gardner in their report of 145 cases obtained "complete symptomatic results and excellent clinical result" in 85 per cent.

As indicated, each patient was asked whether or not an attempt was made to replace the uterus prior to operation, and if so, whether it was successful and was followed by relief of symptoms. Of the 105, forty-seven stated that the attempt was made and only eighteen that it was successful. In each instance where correction was accomplished, relief of symptoms followed, and the postoperative results were fifteen excellent, two fair and one poor—well above the average for the series. The postoperative results in the group of twenty-nine patients with attempted but unsuccessful pre-operative replacement were fifteen excellent, nine fair, three poor and two failures.

Of the entire group of 148 cases, the operative notes mentioned adherent retrodisplacement only eight times. Of the 105 who replied, only four proved at operation to have adhesions preventing replacement, yet the records indicate successful replacement in only eighteen.

Of course, the patients' judgment as to whether attempted correction was undertaken prior to operation may not be accurate, but forty-seven known attempts in 105 patients and only eighteen successful replacements in the presence of only four adherent retrodisplacements are figures that even if quite inaccurate are much too low.

Since so few retrodisplacements cannot be at least temporarily corrected conservatively and since such a great correlation exists between the results obtained with correction maintained by pessary and the postoperative results, a much greater effort should be made in this direction.

Of the eight patients who obtained no relief, all were elective, none was associated with serious pathology in the pelvis, only one was adherent, and it was the one with urinary disturbance which was *worse* postoperatively. This patient and three others had an unsuccessful pre-operative attempt at correction, one of the others had successful pre-operative attempt with relief of symptoms, but had a postoperative recurrence of the retrodisplacement with return of all symptoms. The other three state that no pre-operative attempt at correction was undertaken.

Summary and Conclusion

A review of the literature on the subject of retrodisplacements of the uterus has been presented together with an analysis of 148 cases of this condition operated upon in Duluth by thirty surgeons. The results were satisfactory in 81 per cent and unsatisfactory in 19 per cent. It has been emphasized that the pre-operative replacement of an apparently symptomatic retrodisplaced uterus is essential in order to insure the highest degree of postoperative success, and where replacement is impossible even in skilled hands, very great effort should be made to rule out all other causes for the symptoms. One should hesitate long before assuming that a retrodisplaced uterus which one cannot correct bimanually is actually adherent.

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TUBERCULOSIS ON THE COLLEGE CAMPUS

A college president who would never tolerate a contaminated water supply on his campus must learn not to permit an open, broadcasting case of tuberculosis loose among his young people. Sneaking tuberculosis must be painted as the crippler and killer it is, more to be feared than the sporadic, dramatic visits to the campus of such well publicized maladies as influenza, measles or mumps. Mild illness in the mass fills the headlines, while deadly tuberculosis, working twenty-four hours a day in its own quiet fashion, goes on filling sanatorium beds and cemetery plots.—CHARLES E. LYGHT, M.D.

THE INTERPRETATION OF SEROLOGICAL TESTS FOR SYPHILIS

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THIRTY years ago the interpretation of results of serologic studies was simple—a positive or negative report of a single test was accepted at its face value in the diagnosis of syphilis. Today the problem is entirely different—using a battery of two to eight technics, the result of each technic is reported in one of six accepted terms, and the report cannot be applied without clinical interpretation. Critical judgment must be used because all the present tests are non-specific. It is obvious that the value of serologic studies will be greatly increased with the development of a truly specific test for syphilis, perhaps the chemical identification of reagin. Unfortunately, in the course of developing such a test there will probably come into use even more tests in addition to the fifteen or twenty which are today accepted as having sufficient value to justify continued use. With such a variety of technics and with the increased number of tests on each serum specimen, the clinician will receive even greater numbers of conflicting reports. He may wish for a conclusive report of a single test, but he knows that his needs today are best served by the performance of an exclusion test and at least one complement fixation and one diagnostic flocculation test.

Since one cannot expect the immediate solution of this problem of false positive or negative reports and conflicting reports it has recently been suggested that the recording of results be modified to assist the average clinician. Moore and Eagle[2] urge increasing the responsibility of the director of the laboratory by provision for a single summarizing report of positive, doubtful or negative; the detailed report of each test might be given on the reverse of the form or in smaller type. Justification for this suggestion lies in the fact that the primary responsibility for conflicting reports is not in the clinic but rather in the laboratory even though the technic and personnel may be of approved quality. An advantage of this system would be the opportunity for interpretation of daily fluctuations in sensitivity and specificity which can be known only to those having access to reports on numerous specimens. Such a report would also lessen the confusion of the average clinician on confrontation with unfamiliar names when more than two or three technics are reported. In many cases the clinician might welcome the general advice of a serologist or syphilologist even though the specialist had no other knowledge of the patient's condition.

The presence of syphilis is practically excluded by a negative report to a sensitive "screen" test (e. g., Kline exclusion or Kahn presumptive). Doubtful or positive reactions are so insignificant that they need not be reported to clinicians. If the result of an exclusion test is doubtful or positive, the specimen is then tested by a complement fixation (Kolmer) and a standard flocculation test (Kline or Kahn); negative results on these tests afford practically conclusive evidence that the positive reaction to the exclusion test was an error.

Negative reports to standard tests exclude the probability of syphilis except in the following circumstances. (1) The reaction may not become positive in the first week or two that the chancre is present. (2) Following the treatment of syphilis a change to serologic negativity usually precedes cure. (3) With modern serologic technics one rarely finds clinically active untreated syphilis associated with negative serologic tests, but in the absence of clinical symptoms an undetermined number of persons spontaneously achieve serologic negativity. (4) In an apparently normal child born of a syphilitic mother the reaction may be negative on cord blood or in the first few weeks of life and still the child may later develop certain evidence of congenital syphilis.

In the presence of clinical evidence one can accept a single positive report as diagnostic of syphilis. In the absence of other signs a diagnosis of syphilis should never be based on reports on a single specimen because non-syphilitic conditions can cause transitory positive reactions. Repeated strongly positive (4+) reactions are rarely reported in the absence of syphilis; leprosy, yaws, and possibly a few other diseases are exceptions. False strongly positive reactions are occasionally reported on the cord blood or in the first few weeks of life of a normal child born of a syphilitic mother.

The recent report of the local Committee on

the Study of Serological Evaluation[1] shows that Minnesota clinicians are fortunate in having very satisfactory laboratories for serologic testing, but even in good laboratories the number of doubtful or conflicting reports may equal the number of significant strongly positive reactions. In 3,764 patients recently admitted to the University Hospitals the incidence of subsequently diagnosed syphilis was nearly 1.5 per cent, but misleading serologic reports were obtained in 2 per cent of the whole group. When there is clinical evidence of syphilis, it is obvious that partially positive serologic reports are probably significant, but in the absence of other demonstrable evidence one must look askance at reports of 1+, 2+, or 3+ reactions even on multiple specimens. One must also be suspicious of falsity when on the same specimen positive reactions by one technic are accompanied by negative reactions to another.

It is the consensus of syphilologists that clinicians too often interpret doubtful or 2+ or 3+ reactions as positive evidence of syphilis. Patients with such reactions must be searched for clinical evidence, and if the reactions persist, the spinal fluid must also be tested. If the results are negative, most of the patients are subsequently shown to be non-syphilitic or at least no further evidence of syphilis can be demonstrated. A few normal people have persistently doubtful serologic reactions or serum positive to one technic but negative to all others. In the recent survey of University Hospital patients it was noted that the vast majority of doubtful reactors were subsequently discharged as non-syphilitic.

Stress has previously been placed on the interpretation of serologic reactions during antisyphilitic treatment, but syphilologists are critical of dependence on such reactions as criteria of response to treatment. After establishment of the diagnosis, it is likely that more satisfactory results would be generally obtained if treatment were based on authoritative schedules and little or no attention paid to serologic reactions. Nevertheless, serologic tests have a limited value in following the progress of treatment and the course of the disease. Early reversal to a negative reaction must not lead to administration of less than the advised number of injections. Neither should persistent positive reactions be regarded as a need for treatment beyond the accepted amount. Patients with persistent positive reactions must have careful clinical study to demonstrate a site of activity of the infection, but such evidence is seldom found. Most individuals with normal spinal fluid but persistently positive blood reactions are clinically cured after two or three years of treatment. The results of lumbar puncture are much more significant than serologic studies on the blood.

During the course of treatment the most significant serologic change is the reversal to positive of a previously negative reaction. The need for lumbar puncture is then imperative as is a thorough clinical examination which must include a search for cutaneous or mucous membrane relapse. A relapsing serologic reaction usually, but not always, requires continuation or reinstitution of therapy. Reinfection with syphilis is rare but must be kept in mind as a possible cause of the positive reaction.

Less frequently, but not rarely, clinicians are confused by reports on specimens of spinal fluid. False positive or negative reactions are probably not common but partially positive reactions may be a source of trouble. In general, the interpretation of these reports may be governed by the general rules applicable to reports of tests on blood serum. If the report of a previous test was negative or if no treatment has been given a partially positive reaction is likely not to be significant.

Summary

Critical review of current serologic knowledge shows that the proper interpretation of reports of serologic tests for syphilis is made difficult by the multiplicity of tests and the complexity of the reports as well as by doubtful reactions and false positive or negative reactions. Strongly positive reactions in the blood or spinal fluid usually indicate the presence of syphilis, though they are poor evidence as to the need for treatment or the degree of infectiousness. Negative reactions to an exclusion test eliminate the need for worry except in a few instances which the clinician may be expected to keep in mind; negative reactions to standard tests need not mean the patient is already cured, nor do they prove that he cannot infect others. Doubtful reactions are the chief cause of confusion, and they must be followed by careful reëxamination of the patient; in untreated cases most of the doubtful or conflicting reports can later be shown to be non-significant.

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CHRONIC LOW-GRADE ORAL TEMPERATURE OF LOCAL ORIGIN IN CHILDREN

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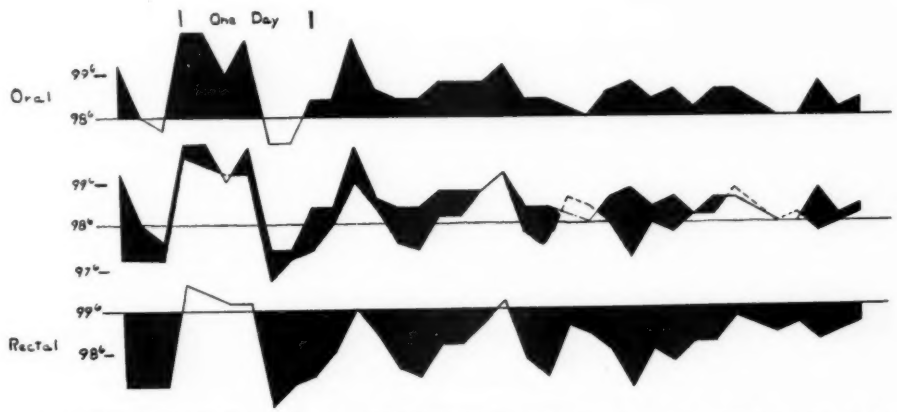
THE possibility of regional warmth due to infection in the nasal sinuses producing an elevation of oral temperature in children has not been sufficiently stressed. As a result many such children are erroneously thought to have a generalized fever of low grade, and thus are forced to suffer the consequences of grave anxiety that this often produces.

Since that time I have encountered the same situation sufficiently often to realize that regional heat due to infected sinuses is not uncommonly responsible for a low-grade elevation of the mouth temperatures in the absence of general



The three graphs indicate oral and rectal temperatures separately, and the two together. The shaded areas represent temperatures above normal on the oral graph, subnormal on the rectal, and the excesses of oral over rectal temperatures on the combined. The empirical, though controversial, level of 99.6 has been assumed for normal rectal temperature.

This fact first came to my attention through the case of a boy four years of age. He had spent a large part of the previous winter in bed as a result of repeated exacerbations of a chronic nasal sinusitis. In March he developed a mild attack of scarlet fever following which the infection of the nasal sinuses persisted in a more active state, giving rise to constant mouth temperature between 99 and 100. Tuberculosis and other diseases of a general nature were ruled out by proper tests, and we felt confident that the origin of the fever lay in the nose and throat. At the end of six weeks the tonsils and adenoids were removed without effect on the temperature. Finally, wondering if the apparent fever could possibly be local from proximity to the nasal sinuses, I asked the nurse to record both oral and rectal temperatures. To my surprised satisfaction the later were normal, often being actually lower than the former. When the patient was permitted to be normally active the oral temperature soon disappeared.

fever. The following case is reported by way of illustration:

Case Report

A girl seven years of age had had whooping cough about two months previous to my seeing her. Since then she had continued to cough. Her temperature had been slightly elevated more or less constantly. In addition a certain amount of headache and fleeting pains around the head and neck had been complained of. She was confined to the hospital for one week, where the cause of symptoms was found to be a wide-spread infection of the nasal sinuses. During her stay at the hospital both oral and rectal temperatures were recorded. Those by mouth were found to be consistently elevated and usually above the rectal temperatures. The later were almost never above normal and usually below. These facts are graphically presented in the accompanying diagram.

It so happens that in the cases in which I have

observed this phenomenon nasal sinusitis has been the responsible element. It is possible that other chronic infections of the nose and throat, such as diseased tonsils and adenoids might also accomplish the same result. I do know that acute tonsillitis may raise the mouth temperature above the rectal, and have been watching to see whether such reversal of temperature relationships might not have some value in the differential diagnosis of fever.

Conclusions

Chronic low-grade elevation of oral temperature in children may be part of a regional thermal reaction resulting from nasal sinusitis, the general body temperature as recorded at the rectum being normal.

THE PRACTICAL APPLICATION OF PROTAMINE ZINC INSULIN IN THE TREATMENT OF DIABETES MELLITUS*

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PROTAMINE zinc insulin has been used in the treatment of diabetes mellitus since 1937. The original compound as prepared by Hagedorn has undergone slight modification, but basically the product is still regular insulin mixed with protamine to which small quantities of zinc have been added. The resulting mixture is much less soluble and is, therefore, more slowly absorbed in the subcutaneous tissue than the clear, soluble insulin hydrochloride discovered by Banting and Best.

Since protamine zinc insulin became commercially available, thousands of patients with diabetes mellitus have been treated with it, and certain clinical facts have been established by numerous clinical investigators in the United States and abroad. All have agreed that protamine zinc insulin acts more slowly than regular insulin; that during the first three to six hours it shows little if any activity as judged by its effect on the blood sugar; that its pharmacological effect continues for at least twenty-four hours with moderate doses, and longer with larger ones; that reactions, though less frequent, are characterized by suddenness of onset and are severe and prolonged, and that many patients have reported a definite subjective improvement from its use.

For the satisfactory control of diabetes mellitus at least three variables must be considered. The first of these variables is the patient himself. No two diabetic patients are alike. Why one patient differs in response to treatment from that of another is not known. It may possibly indicate that there are different forms of the disease. The juvenile, adolescent, and early adult, and also the asthenic individual are generally found to have severe diabetes that is relatively refractory to treatment. In these cases the blood sugar is likely to be unstable, so that glycosuria is difficult to control and insulin reactions readily occur. On the other hand, the obese adult, senescent, and senile individuals have as a whole relatively mild diabetes and fairly stable blood sugars. Fortunately, this group is numerically greater. All of us know that the most stable patients become unstable during an emotional upheaval, an intercurrent infection, an associated hyperthyroidism, or following operations.

The second variable factor is the diet. There are several schools of thought in regard to this variable. There are those who advocate a high carbohydrate, low fat diet, or a high fat, low carbohydrate diet, or a diet midway between these two extremes. There are others (particularly in Europe) who have reported impressively satisfactory results from normal or free diets, but since we are attempting to stabilize as many variables as possible, the use of the free diet seems hardly justifiable. Needless to say, dietary regulation during the present Hagedorn era of protamine zinc insulin remains predominantly important. Until we learn how to prevent or cure diabetes dietary control will remain the most important item in prescribing for the diabetic patient.

The third variable factor is insulin. When

*From the Fargo Clinic, Fargo, North Dakota. Read before the annual meeting of the Minnesota State Medical Association, Saint Paul, Minnesota, May 26, 1941.

protamine zinc insulin was discovered, it was believed that the variable of insulin had been solved. Like all new therapeutic agents, the best side is apt to present itself first, and only on longer acquaintance reveals the disagreeable traits which detract from their usefulness. Despite technical refinements and improvements in the uniformity of the new insulin products, frequent failings in the slower acting insulins have become apparent with extended experiments. Briefly, these failings were manifest in diurnal glycosuria; in the necessity for supplementing the zinc protamine insulin with injections of regular insulin; in serious, rarely fatal, reactions; and often, in fact, in such erratic diabetic control as to force the abandonment of protamine zinc insulin in many cases where its aid would have been most welcome.

By far the most objectionable feature encountered with the use of protamine zinc insulin is the danger of grave hypoglycemic reactions. Unlike the reactions from ordinary insulin which come on rapidly after administration, most often during the day, and are quickly controlled by orange juice, the reactions from protamine zinc insulin are insidious in onset, come on during the night, tend to be prolonged, severe, recurrent, and are little and only temporarily influenced by the customary sip of glucose. So ominous were these potentialities in the newer insulins that they were the subject of an editorial warning in the *Journal of the American Medical Association*,[1] a warning issued during the time of our greatest enthusiasm for this new therapeutic agent. This editorial reviewed the evidence necessitating this notice and stressed the fact that protamine zinc insulin was not, as some had hoped, a fool-proof substitute for the older insulin. It might be stated, however, that this is not entirely the fault of the insulin, but probably the result of its misuse. In an effort to control the severe cases with a single injection of protamine zinc insulin, many of us have been guilty of giving too large an amount. There are at least two ways to overcome this disadvantage: (1) first, by using both unmodified and protamine zinc insulin which will be discussed later; (2) by arranging the meals so that less of the carbohydrate and protein foods are given for breakfast, and more are reserved for the noon and evening meals.

As an improved method of preventing nocturnal reactions from a morning dose of protamine zinc insulin, Sprague[8] has suggested that a glass of milk and a few crackers be given before bedtime. Pollach and Lande[6] have suggested a protein feeding at bedtime and the omission at breakfast of foods containing immediately available sugar, such as fruit juices. S. Harris and S. Harris, Jr.,[2] recommend six meals in place of the usual three. Margolis and Eisenstein[5] divide the twenty-four hour caloric requirement into four allotments: one-fifth of the total caloric intake at 8:00 a.m., one-fifth at noon, two-fifths at 5:00 p.m., and one-fifth at 9:30 p.m. They feel that in some cases feeding two-fifths of the daily food quota at 9:30 p.m. is the best procedure. The late meal might be one slice of bread, a glass of milk containing 50 grams of 40 per cent cream, and two eggs (or their equivalent in meat or cheese). They believe that under this régime a single daily injection of protamine zinc insulin sufficed for control.

All of these authors are in agreement that the most sustained protection against hypoglycemia, and hence the possibility of insulin fatalities, are eliminated by a late supper or a "protective fourth meal" that will be digested and absorbed slowly while the patient sleeps.

The more frequent occurrence of localized skin reactions in the use of protamine zinc insulin has been given by various authors as one of its chief disadvantages. Kern and Langner[4] reported an incidence of 16 per cent. These authors were of the opinion that most of these reactions were not due to a sensitization to protamine but appeared to be due to errors in the technique of injections, such as too superficial, (i.e., intracutaneous) injection of material; irritation by alcohol when that substance has been used to sterilize the hypodermic outfit; occasionally, to infection, the result of faulty aseptic technique. The errors occurred as a rule when the material was injected by the patient himself. Rynearson,[7] on the other hand, states that within the past several months he has not seen one single case of skin irritation and believes that this reflects improvement in the manufacture of the article.

So manifold are the advantages of protamine zinc insulin that almost all patients who require insulin should receive it either alone, or in combination with the unmodified insulin. As Wilder[9] has so ably stated: "Our reason for using protamine zinc insulin is not so much that it makes

necessary fewer daily injections, or that a saving in the unitage required usually is observed, although both of these are good reasons; the principal advantage of protamine zinc insulin is the continuity of insulin activity obtained with it and difficult to secure with shorter-acting insulins, unless more frequent injections are made than is convenient or practical." Wilder[10] demonstrated experimentally that continuity of insulin activity is necessary to prevent the recurrence at intervals of periods of protein wastage associated with ketosis. In other words, doses of protamine zinc insulin, inadequate in severe cases to completely control glycosuria, provides protection for the tissue proteins and thus makes possible satisfactory treatment with less rigid control of glycosuria than was formerly required.

The administration of protamine zinc insulin in one dose daily before breakfast has now been rather universally adopted, although there may be occasional instances in which injections in the evening are more acceptable. It has been found that small doses of protamine zinc insulin, that is, 20 units or less are exceedingly well borne without the fear of insulin reactions and may be used rather freely. Such amounts of insulin are applicable to the mild cases and serve exceedingly well in controlling them. In some instances, the taking of protamine zinc insulin every other day has been sufficient for control which serves as a demonstration of its effect for more than twenty-four hours. It is rarely possible in severe cases to obtain satisfactory control with protamine zinc insulin alone, and in most cases when the total dose of insulin required exceeds 20 or 30 units, injections of supplementary unmodified insulin are required to prevent marked glycosuria after meals.

In most cases, I now prefer to use the method advocated by Wilder in which only enough protamine zinc insulin is given to provide adequate control during the night and adding to it and mixing what unmodified insulin is required to prevent marked glycosuria during the day. With this combination adequate control can be obtained both of post-absorptive and post-prandial glycosuria with one injection a day given before breakfast. (For the reader who is interested in the technique for the use of mixed insulins in one syringe, reference may be made to Wilder's "Clinical Diabetes Mellitus and Hyperinsulinism" for details.") When using this technique, it is important to draw the dose of unmodified insulin into the syringe first to avoid introducing any of the alkaline protamine zinc insulin into this bottle.

The dose of each component of the mixture of protamine zinc insulin and unmodified insulin may need to be changed daily. Therefore, it is necessary that the patient examine a specimen of urine which is voided before breakfast and of that which is voided before supper. The bladder should be emptied not more than one hour before the specimen for analysis is collected. In other words, urine for testing must be urine recently secreted by the kidney. The result of the test of the urine voided before breakfast indicates whether the protamine zinc insulin component of the mixture to be given should be increased or decreased; that of the test before supper indicates whether the unmodified insulin component is to be increased or decreased. For both components, changes of dosage are made in steps of four units in adults and in two units for children. This rule, however, no longer applies when patients reach the point where they are taking very small amounts of insulin, and, in some instances, it is possible to discontinue insulin entirely, and, if the patient remains sugar-free and well controlled, it may not be necessary to resume it again.

In this procedure, except when the dose of insulin is very small, it is recommended that the patient be permitted to show small traces of sugar in the urine. Some authors do not agree with this recommendation, but in the opinion of Wilder, it is as important for the comfort and safety of the patient to avoid insulin reactions as to prevent other complications, and to insist that the patient's urine should be continuously sugar-free when using protamine zinc insulin is to invite reactions. Blood sugar determinations, however, should be made from time to time to insure against hypoglycemia, but in most cases, urine sugar tests are all that are needed.

Reactions to Protamine Zinc Insulin

I have already pointed out the dangers which accompany the reactions with protamine zinc insulin. Mild reactions are quite common, and we should be more concerned in preventing them than in controlling the glycosuria. The most common symptom is a headache present in the morning when the patient wakes up, and this

may remain during the day or come and go during the day. The next most common symptom is unusual fatigue and weakness after slight exertion. The patients have less warning of a reaction with protamine zinc insulin than with regular insulin, and it is for this reason some of the reactions become markedly severe before the necessity of glucose is ascertained. Other symptoms may be drowsiness, numbness about the mouth, tingling of fingers, blurring of vision, pallor, mental symptoms, trembling, nausea, and finally, unconsciousness and convulsions. The appearance of the earlier symptoms should warn the patient and give him ample time to initiate treatment, if he will recognize their approach. Treatments of reactions should consist in taking about 10 grams of sugar or 100 grams of orange juice followed by some milk or bread or both at intervals of an hour or two until the next meal is eaten. If the reaction is more severe, 10 to 20 grams of glucose should be given intravenously. When in doubt, it is better to treat the patient for hypoglycemia than to permit the reaction to become more serious.

Pre-operative and Postoperative Care of Diabetic Patients

When contemplating operation, it is important that a patient's glycosuria be completely controlled before an operation is scheduled, unless an emergency is necessary, which, fortunately, is not frequent. This may take several days or rarely weeks. Particular attention should be given to the complete relief of all symptoms of acidosis, and the patient should enter the operating room with the concentration of the sugar in the blood essentially normal, and the urine free of sugar. In all cases during the pre-operative period, the patient should be given adequate amounts of carbohydrate foods, and this is particularly true in the presence of liver disease, in order to insure an adequate deposition of glycogen.

On the day of the operation, it is extremely important that the patient not receive so much insulin that he is likely to have an insulin reaction. Patients who are receiving both protamine and unmodified insulin for the control of diabetes should be given only a small amount of protamine zinc insulin on the day of operation, which will have little if any effect until after the operation has been completed, and to delay giving any unmodified insulin until the patient has returned from the operating room. Routinely it is well to obtain blood for quantitative estimates of blood sugar, both immediately before and immediately after the operation, and at intervals for the first day or two, since the patient's urinalysis is of questionable value during this time. The reason for this is that many patients receive glucose intravenously, and it is difficult to know how accurately urine findings reflect the level of the blood sugar. The dose of protamine is repeated daily, but in very small amounts, and unmodified insulin is supplemented to control the glycosuria until the patient is back on a regular diet.

A discussion of the treatment of diabetic coma would involve the writing of a separate paper. Therefore only a few generalities regarding the use of protamine zinc insulin in its treatment will be given. Contrary to earlier reports, protamine zinc insulin, when given in conjunction with unmodified insulin, is of definite value as an adjunct in the treatment of diabetic coma. This was first pointed out by Ingham, Kepler, and Cresler.[3] As a rule, fifty units of protamine zinc insulin may be given to adults at the onset of treatment. At the same time unmodified insulin is administered (perhaps fifty units) and the usual treatment for coma is conducted. It will be hours before the protamine zinc insulin will have any effect. During this time, particularly, many injections of regular insulin may be necessary. For the next few days, protamine zinc insulin is given once daily, the dosage depending largely upon the estimated requirements of insulin in each individual case. Its advantage in coma lies in the fact that it reduces the number of subsequent injections of unmodified insulin, tends to prevent excessive fluctuation in the concentration of the blood sugar, and more important still, will probably prevent the sudden and unexpected "escape from control" which sometimes occurs relatively late in the course of treatment when the patient seems to be on the road to recovery and the physician is inclined to relax his vigilance.

When complicating infections or other emergencies arise, the requirement for insulin temporarily is elevated. In these cases, it is better not to change the dose of protamine zinc insulin, but to supplement it with unmodified insulin to provide the extra insulin that is necessary. This is to avoid bringing up the dose of protamine zinc insulin which may be excessive as soon as the

emergency is past and, because of its long duration of action, cannot be quickly diminished.

Summary

Protamine zinc insulin constitutes an important advance in the treatment of diabetes. With its judicious use, the diabetic may live a more normal and useful life than with the unmodified insulin alone. Hypoglycemic reactions constitute its mose serious drawback. These usually can be prevented by the adjustment of the diet, and the associated use of unmodified insulin. Suggestions regarding its use in postoperative conditions, emergencies, and diabetic coma are discussed.

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ALCOHOLISM AS A NEUROSIS*

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THROUGH a period of about 300 centuries and for a variety of reasons human beings have used alcohol internally. While the reasons for man's ingestion of alcohol may vary, the effect of the drug has remained fairly constant. It is true that different individuals will react differently to the drug, but it is also true that the response of the same individual usually follows a fairly constant pattern. Just when in the history of mankind alcoholism became a social problem is difficult to determine but perusal of ancient documents furnishes convincing evidence that the problem is as old as antiquity.

Advances in our knowledge of psychodynamics have brought about fundamental changes in our concept of what is commonly called "alcoholism." It is a far cry from the Victorian days, embellished with melodramatizations such as can now be seen in a current revival of that old play called "The Drunkard" to our modern, scientific view of the same situation. It may now be taken for granted that everybody who drinks alcoholic liquor is not necessarily a candidate for a sanitarium. Without going into the moral issues involved one can say that the vast majority of people who drink, do so with impunity. In fact, there are many who believe that in the hustle and bustle of modern life the mental and physical relaxation resulting from the ingestion of a reasonable amount of alcohol under proper social control and at not too frequent intervals is distinctly beneficial. At least, it may contribute much to the art and joy of living.

There are, however, people who *never* under any circumstances whatever, should take a drink. These individuals are known as *problem drinkers* and our concepts regarding them are entirely different from our ideas concerning what are referred to as *controlled* drinkers. The former are people for whom the use of alcohol has become a psychological, physical, social, domestic, and personal problem. The latter are individuals who can "take it or leave it," and, with the possible exception of an occasional moment of embarrassment resulting from overindulgence, can relegate alcohol to an inconsequential role in their total life situation. If all drinkers could remain controlled drinkers there would be little to say against alcohol as a beverage.

Now, what is a problem drinker? We have discarded the use of the term "alcoholic" because it implies the taking of inordinately large amounts of the drug. A problem drinker is not necessarily a heavy drinker. Many heavy drinkers go on for years consuming every day what, according to the usual standards, would be considered large amounts of alcohol, and yet suffering no apparent ill effects. On the other hand, there are drinkers for whom two or three highballs a day constitute a problem. These are

*Read before the annual meeting of the Minnesota State Medical Association, St. Paul, Minnesota, May 28, 1941.

people who drink not because they want to, but because they have to. They are the ones for whom alcohol is an absolute necessity and whose total life situation is adversely affected by it. They are the unhappy drinkers, the escape drinkers, the men who drink to satisfy some inner psychological need. Many of them never become acutely intoxicated, and yet they never are completely sober. I know controlled drinkers who, on occasion, drink more than some problem drinkers. They get howling drunk on occasions which call for celebrating and they have a good time doing so. Being of somewhat childish natures, they regard getting drunk as harmless and funny, and when they drink to excess they do so because they want to, and not by way of yielding to an uncontrolled habit. Their drinking never has an adverse effect on their total life situation, and if they ever became convinced that there was some adequate reason for giving up alcohol, they could and would do so.

The problem drinker, however, cannot consciously realize that he has a problem, and any implication to the effect that he had better stop and take stock of himself frequently is met with righteous indignation. Yet, let something interfere with *this* man's customary drinking habits and he is devastated. His inner need for alcohol is so deep and so strong that, in spite of the fact that doing so brings unhappiness and poor health to himself and misery to his family, he continues to narcotize himself with alcohol. In other words, the alcoholic antics of controlled drinkers are volitional and occasional, while those of the problem drinker are involuntary and symptomatic.

I say that the indulgence of the problem drinker is symptomatic. In the vast majority if not in all cases the underlying cause lies in the psyche of the individual. Therefore the cure, if one is to be effected, becomes a psychiatric problem. In the light of our present knowledge of psychodynamics the old procedures involving the use of appeals to the patient's better nature, entreaties, reward and punishment techniques, pep talks, trick cures, and apomorphine are about as rational as wearing amulets to ward off smallpox. The problem drinker, in addition to having his total life situation adversely affected by alcohol, frequently displays many other disturbances within the personality. He consistently shows evidences of maladjustment in his family relationships, and in business, social, and other adjustments; as well as emotional immaturity together with other evidences of neurotic behavior. This indicates that the alcoholic pattern is not the total picture but must be regarded as only a symptom and not as a diagnosis. For this reason our therapeutic efforts must be directed primarily at the underlying neurosis and this implies something more than hot baths, thiamine chloride, massage, bromides and pep talks. It means a searching investigation of the personality structure of the patient, analysis of the dynamic factors which have entered into his psychobiological integration, and in many cases a resynthesis of his total personality. Obviously this cannot be done with a few injections of apomorphine.

There is no psychotherapeutic technique which will solve the problem of the drinker who is a constitutional psychopathic inferior individual. One might as well try to change the color of his eyes. His action pattern is constitutional and unmodifiable so no time will be devoted here to a consideration of his type of problem. However, there remain a large number of problem drinkers who can be rehabilitated and relieved of their suffering. In some the alcoholic addiction is an expression of an underlying neurotic or even psychotic depression; in others it seems to be a reaction to some intolerable situation; other victims use alcohol to narcotize feelings of diffidence and self-consciousness which make themselves felt when the individual is forced into social situations to which he cannot adjust. These people are not self-willed, unthinking, inconsiderate hedonists indulging in a vicious but controllable pastime. They are people whose action pattern is closely interwoven with unhappiness, misery, maladjustment, and suicide. Therefore mass or rubber-stamp treatment can be no more successful in the treatment of problem drinkers than it could be in the treatment of patients suffering from brain tumor or from dementia precox. The treatment must be individualized and specialized. It involves a consideration of the patient's physical and psychological structures as well as a detailed study of his family and other social relationships.

The method of treatment which I employ differs in some respects from that used by other psychiatrists, but in the main essentials it follows the same general plan. It is preferable that the patient comes for treatment before he has

passed the age of forty, although some very satisfactory results have been obtained in men who were in their early fifties. Previous experience on the part of the patient with various "cures" seems to be immaterial, and I have seen very satisfactory psychological adjustments achieved by men who have previously been exposed unsuccessfully to a number of "institute" cures.

One absolute prerequisite to the successful treatment of the problem drinker is that he submit to treatment soberly and willingly. He must present himself for treatment with the frank and tacit admission that he has a problem which he is unable to manage by himself, and he must ask to be helped. To have him regain consciousness in a hospital or a sanitarium aftrer having been drugged and shanghaied in by family and friends is to get off to the worst possible start. He is bitter, resentful, and in anything but a coöperative frame of mind. True, with eliminative and reconstructive therapy the alcohol can be eliminated from his body and a certain amount of tissue damage can be repaired, but very little if anything can be done to correct the underlying faults in psychological adjustment. Therefore, it is absolutely necessary for the patient to enter the hospital voluntarily and without mental reservation.

Having begun his treatment under the proper auspices, it now becomes necessary that the problem drinker fully understands his relationship to the psychiatrist. At no time is the problem drinker ever permitted to think that his compliance in the treatment is to be considered a favor to the therapist. Not infrequently when a patient asks for an extension of privileges he will supplement his request with some remark such as, "Don't worry, Doctor, you can trust me out alone. I won't let you down after all you have done for me." I invariably make it unmistakably clear to the patient that his success or failure in treatment in no way affects me. There is only one person who is ultimately affected by success or failure on his part and that is himself. I point out to him the fact that he came in of his own free will and accord, that he admitted he had a problem he was unable to manage alone, and he asked to be helped. Therefore I was not going to let him get away with the idea that by keeping straight he was doing me a favor any more than he was doing a favor to his wife, his bishop or to the President of the United States.

The proper rapport having been established between psychiatrist and patient, an analysis is now begun of the subject's entire life situation. I follow a biographical outline and keep a work sheet upon which is recorded the material obtained in each daily interview. These daily interviews last for from one-half to one hour, depending upon the circumstances, and at the conclusion of each it is desirable to formulate and comment briefly or at length (depending upon what has been obtained) upon the material that has been covered. In this way the patient is helped in developing insight into some of the dynamic factors entering into the production of his neurosis.

After two or three weeks of psychiatric interviews the therapist begins to get a pretty fair idea of the personality structure of the patient as well as some of the factors involved in his alcoholism. However, the picture frequently is incomplete and one senses the lack of certain important psychiatric modalities. In order to render these modalities accessible, certain special techniques are requred. Among the most useful of these is the Rorschach experiment. To expound the intricacies and the possibilities of the Rorschach experiment is not within the scope of this paper. Suffice it to say that it is a method of rapid personality analysis based upon the subject's free associations to a series of standardized ink blots. Formulation and interpretation of his responses according to an established technique furnishes the trained investigator with valuable data concerning the patient's inner personality structure, and this data can be put to clinical use. I have used this technique in a number of cases and am convinced of its value.

The next and final stage in the treatment of the problem drinker is reformulation of the material covered, and a synthesis of the personality. In my experience the most useful technique is the use of carefully selected and authenticated reading material. From the voluminous literature on the psychology of alcoholism I have selected three books. The first might be said to be somewhat elementary from a psychological standpoint, the second more advanced, and the third amounts to a textbook on the neuropsychiatry of alcohol. I do not permit my patients to read these books in a perfunctory and

desultory manner. They are required to read each book slowly and carefully and are permitted to read only two or three chapters at a time. They keep notes on what they have read and each day we discuss in close detail the individual assignment. In this way I learn what the patient is getting from his reading, what his attitude is toward the treatment, and how he feels about future drinking. He, in turn, learns many things about himself hitherto unknown, and is helped toward a better integration.

What is a cure? I do not consider a problem drinker cured until his *need* for alcohol is *destroyed*. As long as it requires will power on his part to abstain from drinking, he is not cured. Mere assurances from the patient that he has learned his lesson and is "through forever," no matter how sincerely uttered, are meaningless. I have seen men who *thought* they were cured, yet were dreaming nightly of being on drinking parties. One patient said to me, "Of course, I have absolutely no desire to drink, it does not take a bit of will power to say 'no,' and I have a new lease on life. However, once in a while I think that it might be nice to sit down and have a cold glass of beer but, of course, I never would do such a thing because I know what it would lead to." I warned him that he was in danger. The mere fact that he could play with the idea of taking a drink indicated that the unconscious need still was there. In two weeks this man had a relapse and returned to the hospital.

If the patient has achieved a new state of mind and through it has acquired a new ability to go forward without resorting to alcohol he is cured. If the unconscious desire to drink has been destroyed, if the neurosis has been cured, the drinking problem has been solved. The patient has an increasing sense of physical and mental fitness and a growing enthusiam in each day's accomplishments. The process of having been cured is not to be thought of as a single dramatic step but, as one writer put it, like learning how to swim. Stroke by stroke the patient has followed the doctor and gradually the support has been removed and suddenly the patient discovers the doctor is no longer there and he has the confidence and the ability to go on alone.

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◆ CASE REPORTS ◆

OTITIS MEDIA, LABYRINTHITIS AND MENINGITIS COMPLICATING PREGNANCY: SUCCESSFUL TREATMENT*

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DIFFICULT diagnostic and surgical problems confront the physician and surgeon in the daily practice of their profession. Fortunately for the peace of mind of the surgeon, unusually difficult and trying situations are not frequently encountered. Fortunate indeed is the surgeon who is surrounded by colleagues who, because of their experience and skill in certain branches of medicine, can be called on to help in the management of complicated conditions. I have no illusions about my own lack of knowledge and am always glad to have others express opinions and supervise certain therapeutic methods in the management of all complicated conditions. A case in which such opinions and such methods were available to me will be reported herein.

*From the Section on Otolaryngology and Rhinology, the Mayo Clinic, Rochester, Minnesota. Read before the Middle Section meeting of the American Laryngological, Rhinological and Otological Society, Inc., Chicago, Illinois, January 27, 1941.

REPORT OF A CASE

A married woman, twenty-nine years old, who was five and a half months pregnant, presented herself at the Mayo Clinic complaining of a discharging left ear. Five weeks before her coming to the clinic sudden severe headache and pain over the face had developed. The pain had lasted for two days and had been ascribed to the effect of influenza. Three days after the onset severe otalgia developed on the left, and multiple hemorrhagic blebs on the canal and drum of the ear were observed. Myringotomy was performed soon after the onset of the pain. This procedure failed to relieve the pain. Ten hours later vomiting without nausea occurred. Definite vertigo from the left to the right was complained of, and horizontal nystagmus was observed. Diplopia also was noticed. This syndrome lasted two or three days. Following myringotomy a

profuse sanguineous discharge from the ear occurred. Cultures showed Streptococcus hæmolyticus to be present in the discharge. Mastoid tenderness or fever never had been present. Treatment had consisted of a transfusion of blood because of secondary anemia, and 30 grains (2 gm.) of sulfanilamide administered daily throughout the entire course of the illness. The patient was said to have had, at one time, facial weakness on the left side.

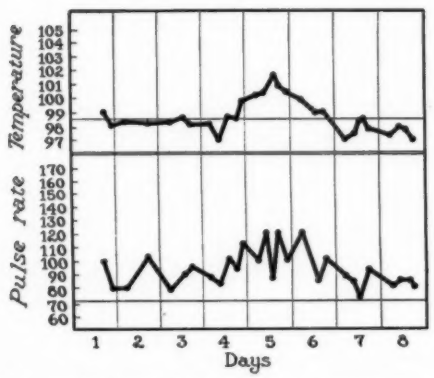

Fig. 1. Clinical chart showing range of temperature (*top*) and pulse rate (*bottom*) for original illness.

Examination revealed that the tonsils had been removed; the pharynx, nasopharynx and nose appeared to be normal. Nystagmus to the right was horizontal in character when the eyes were held in the extreme right lateral position. Results of examination of the right ear were negative. There was a profuse purulent discharge from the left ear; the left ear drum was soggy and red. There was some evidence of drooping of the superior wall of the canal. There was no evidence of mastoid tenderness. Hearing tests revealed marked lowering of perception for the high tones; this lowering of perception was more severe than is usually encountered in the presence of a typical instance of otitis media. Roentgen-ray examination of the mastoid processes revealed the right one to be of the pneumatic type and normal. The left one showed the same type of mastoid cell arrangement as that of the right and all cells were cloudy. There was no definite evidence of destruction. Results of a roentgenogram of the thorax were negative. Examination of the blood revealed the hemoglobin estimation to be around 8.4 gm. per 100 c.c.; erythrocytes numbered 3,000,000 and leukocytes, 8,700, per cubic millimeter, respectively. The patient was found to have blood which was classed in group II. Microscopic examination of the urine revealed some leukocytes.

On the second day of observation, concentric narrowing of the left auditory canal was definite. Copious discharge from the middle ear recurred immediately when previously accumulated discharge was removed from the canal. In fact, there was too much discharge from the ear for it to be accounted for on the basis of infection of the middle ear alone. Again, no mastoid tenderness was elicited.

Two conditions were considered in the making of the diagnosis. It was a question of whether or not the condition originally was herpes zoster oticus, and secondarily, otitis media. We felt very confident that the condition before us at the time was surgical mastoiditis. Because the patient was pregnant, the decision to operate was made with difficulty. However, in consultation with Dr. Faber, the obstetrician, it was decided that there was no contra-indication to operation on the mastoid process.

On the third day of observation operation on the mastoid process was performed. At operation no particular disease of the outer mastoid cells was encountered. As the region of the middle ear was approached, the cells were found to be filled with thickened mucous membrane. Pus was not present. In the region of the tympanic antrum a jelly-like mass of

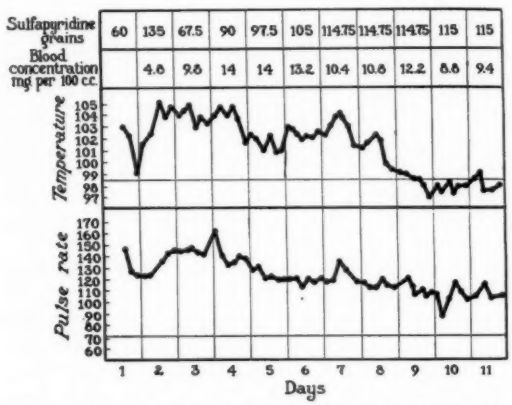

Fig. 2. Chart showing range of temperature (*top*) and pulse rate (*bottom*). At extreme top is the amount of sulfapyridine administered and resultant concentration of the drug in the blood.

plastic exudate was encountered. This extended throughout an irregular cavitation, through to the aditus. The small cells around the capsule of the labyrinth were filled with thickened membrane and when the septums of the cells were removed it appeared that the mucous membrane had been pushed through. This region was carefully dissected out until clean white bone was encountered. The extensive cellular arrangement around the zygoma also was involved by the disease. Evidence of definite disease of the labyrinth was not encountered. After completion of the operation the cavity was washed with the anhydride of 4-nitro-anhydrohydroxymercuriorthocresol (metaphen).

The postoperative convalescence of this patient was entirely normal throughout, as the graphic chart (Fig. 1) shows. The patient was dismissed from the hospital to the care of her otologist at home on the tenth postoperative day. At that time the ear was discharging slightly, but that fact gave no misgivings.

Six weeks later the patient returned to the clinic because severe headache over the vertex had been present for five days. She had noted some unsteadiness in gait. The headache was particularly severe during the early morning hours. For thirty-six hours it had been unbearable. It was associated with nausea and vomiting. On the day of admission the patient had chills and elevation of temperature. There had been no vertigo. There were no unusual symptoms in regard to her pregnancy.

Examination of the cerebrospinal fluid revealed it to be cloudy but on microscopic examination and culture no organism was encountered. The morning after admission the patient was found to have left hemiplegia and Babinski's sign was present on the left. There was no rigidity of the neck. She was definitely comatose. The neurologists felt that in all probability the clinical picture was that of an intracranial lesion, cerebellar in type, with a crus syndrome. Chemotherapy was instituted and supervised by Dr. A. E. Brown.

The situation seemed so desperate that surgical in-

terference did not seem warranted. The relatives were consulted and the question as to whether cesarean section should be done in an effort to save the life of the child was discussed. The husband and parents of the patient decided that cesarean section should be done, and that even though there was little chance of saving the patient's life by any operation on the mastoid process, it was felt that it also should be undertaken.

Cesarean section was performed by Drs. Waugh and Faber. The child was born alive. Following completion of this operation an exploratory operation on the mastoid was performed. Exposure was made as is usual in a radical mastoid operation. Leads to the pyramid were carefully sought for in and around the found. In smoothing up the granulations near the falabyrinth and in front of the cochlea. They were not cial ridge a drop of pus was encountered. Exploration of this region revealed suppurative labyrinthitis, with a defect into the anterior end of the horizontal canal, to be present. The labyrinth was then opened up widely, after the method of Neumann. The seventh cranial (facial) nerve was found to be enveloped in a sequestrum of bone. It was very difficult to remove this sequestrum. The patient's face twitched on any manipulation. Removal of the sequestrum was finally accomplished. The dura over the middle fossa down to the angle and the superior petrosal sinus was exposed, and was seen to be as red as the dura over the tegmen of the middle ear. The dura over Troutman's triangle was exposed over the cerebellum. No defect in the dura was encountered and exploration of the cerebellum was thought to be unwise in this stage of the disease. At completion of the operation the wound was packed with a soft rubber drain after the cavity had been swabbed thoroughly with tincture of metaphen.

Before the patient left the operating room table she received a transfusion of 750 c.c. of blood by the citrate method. After being returned to bed, the patient was placed in an oxygen tent. Facial paralysis was noted soon afterward.

On the fourth postoperative day the patient seemed to be somewhat rational and responded to questions. It was found that removal of the patient from the oxygen tent caused severe cyanosis. Oxygen was administered until the sixth postoperative day (Fig. 2). On this day the patient was able to move her left arm and leg freely. Facial paralysis was not complete in the sense that no motion was present, although apparently all the branches of the facial nerve were involved. Following the sixth or seventh postoperative day there was continual improvement in the general condition of the patient. Hemiplegia cleared gradually, and facial palsy remained about the same, although it was never wholly complete. A projectile type of vomiting occurred on several occasions, but it was felt that this was not caused by drugs, but probably by some disturbance within the brain. The patient was discharged from the hospital on the twenty-first postoperative day. The baby had died on the third day of its life. Necropsy revealed that atelectasis of one lung was present.

At the time of the original admission of this patient there was no particularly difficult feature in the composite case, except perhaps that the patient was pregnant. The symptoms suggestive of irritation of the labyrinth had subsided. If the original condition had been caused by herpes zoster oticus the urgent condition was, at the time we encountered the patient, surgical mastoiditis. Deafness was more severe than usual, but the fact that the hearing was not lost completely seemed to suggest strongly that the entire labyrinth was not involved by a suppurative disease. The facts that the operative findings were disappointing and that the discharge from the ear continued were disquieting.

Onset of symptoms suggestive of intracranial extension of the infection occurred rather suddenly in the postoperative course; at a time, in fact, when resolution should have taken place. Curiously enough, the symptoms and signs were not those usually associated with suppuration of the labyrinth. The severe headache and pain were not well localized. The onset of symptoms and signs associated with meningitis, except for rigidity of the neck, was confusing. Cerebellar abscess was suspected. The development of hemiplegia on the same side suggested a lesion involving the crus. Coma made the interpretation and estimation of signs more difficult. The fact that the stage of pregnancy was near term did not make our decision any less difficult. Confronted with the probability that two lives would be lost, we told the relatives of the seriousness of the situation. They were coöperative and decided that operations to save the life of the child and mother should be undertaken, even in the face of such an unfavorable prognosis.

Fortunately, within the last decade, chemotherapy has taken its place in the management of complications resulting from infections of the ear and temporal bone. It would hardly be within the scope of this report to give the details of the course of chemotherapy that was administered in the foregoing case. That, I think, should be done by Dr. A. E. Brown, who so kindly supervised this method of treatment. It is my candid opinion that if chemotherapy had not been used, this patient would not have survived, despite the fact that surgical interference was undertaken. The satisfactory result obtained in this case resulted from the combined efforts of a group of earnest physicians and surgeons.

The patient was seen late in the summer. She had gained greatly in weight and looked to be the picture of health. The condition of the ear was excellent and the facial paralysis had disappeared completely. Thus, it can be said that this patient in the eighth month of pregnancy completely recovered from acute suppurative labyrinthitis, meningitis, and probable encephalitis, secondary to suppurative mastoiditis.

Conclusions

What appears to be an axiom in the management of the complications of suppurative diseases of the ear is that the original focus in the ear or temporal bone must be adequately cared for surgically if the complication is to be combated successfully by adjunct methods of treatment.

It may be safely said that chemotherapy is more effective in combating the extensions of infections to adjacent structures than it is in the treatment of the primary infection in the ear and temporal bone. Chemotherapy cannot be relied upon to cure infection in the ear or temporal bone. It is too likely merely to hold the infection in check; perhaps by reduction of the virulence of the infection. Too much evidence has accumulated to show that symptoms and signs in infection of the mastoid process too often are only masked for reliance to be placed on chemotherapy as a curative method. A false sense of security is as dangerous in surgery as it is in other affairs.

UTERINE FIBROMA INCARCERATED IN A STRANGULATED INGUINAL HERNIA DURING PREGNANCY

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THE incarceration of a uterine fibroid in the contents of a strangulated inguinal hernia is without question a very rare condition. Occurrence of this condition during pregnancy enhances considerably the interest of the investigator. A rather complete review of the literature reveals the rarity of the condition and it is for this reason that the following case is being reported at this time.

Mrs. M. D. a white primipara aged twenty-nine, was first admitted to the Lakeview Memorial Hospital at Stillwater, Minnesota, on February 3, 1936. The history elicited at that time revealed that twenty-four hours prior to admission the patient was seized with a severe coughing attack and at the same time developed a severe, agonizing pain and swelling in the left inguinal region. History also revealed the fact that the patient had entered her fourth month of pregnancy. The pregnancy up to the time of her present illness had been entirely normal. The family history was negative and quite irrelevant.

Physical examination at the time of admission revealed a white female of the stated age who was suffering from severe pain in the left lower quadrant. A hard tender mass about the size of a large hen's egg was palpable in the region of the left inguinal canal. The mass was not reducible. Vaginal examination confirmed the history of a pregnancy of about four months' duration. The patient's temperature was 99, pulse 88 and blood pressure 118/64. The urine was normal and leukocytes numbered 14,200.

A diagnosis of a strangulated left inguinal hernia was made and immediate operation performed. When the hernial sac was opened and explored, a pedunculated uterine fibroid measuring 4x2x2 cm. was found incarcerated in the hernial sac. The fibroid was amputated from the uterus and the serosal surface closed. The hernia was repaired in the usual manner and the patient made an uneventful recovery, being discharged from the hospital on the seventeenth postoperative day.

The patient's pregnancy was carried to a full term completion and a normal delivery and postpartum course followed.

Pathologic diagnosis of fibromyoma was made by Dr. Kano Ikeda on the tissue removed.

DISSECTING ANEURYSM OF THE AORTA: ANTEMORTEM DIAGNOSIS

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SEVERAL dozen cases of dissecting aneurysm of the aorta have been reported as diagnosed ante mortem in recent years, interest having been stimulated in the subject and the clinical picture and course clarified by the many case reports appearing in the literature. The following case is added to this series because of several interesting features which seemed to be explained by autopsy findings, and one of which could not be found in case reports in the literature.

The patient, a ruddy farmer of forty-seven who had fought in the German Army during the World War and had immigrated to the United States in 1923, was seen by the writers in his farm home February 17, 1941. He had been well, except for a cold and some chest discomfort about a week before, until about 3:00 p.m. on February 17, 1941, when he was seized while at a farm sale in a cold wind with a sudden severe pain in the chest. He had come home unassisted where he was seen first lying on a couch, semidelirious and complaining of a severe, sharp tearing pain behind the upper sternum. The relatives stated he walked into the house himself, a grey color, shortly before. One of the writers corroborated this description and found him pulseless and disoriented. When seen by the other writer his color was pink, perspiration was marked, he moved actively on the couch and had to be urged to lie still. The temperature was normal, pulse 54, and blood pressure could not be estimated in either arm. Radial pulse was almost imperceptible, but regular. There was a loud scraping to-and-fro blow over the upper sternum which could be heard down along the thoracic spine. A definite Duroziez sign was noted over the femorals. Dyspnea, cerebral excitement, and anxiety were marked but the ruddy color over all persisted. Because of the aortic type murmur, the absence of cyanosis or pallor, or history of syphilis, and the character of the pain, a tentative diagnosis of dissecting aneurysm of the aorta was made.

An electrocardiogram was done before he was removed by ambulance to the hospital, about one hour after his return home with the pain attack.

On admission to the hospital the blood pressure was about 45 mm. mercury; systolic and the diastolic was indeterminate. His pulse remained around 56 and regular. The severe chest pain persisted just to the left of the sternum and gradually during the next few days, until the patient lost consciousness, migrated from the second interspace to about the third interspace. The loud scraping to-and-fro blow heard at first persisted, loudest over the second interspace close to and over the sternum, but heard over the entire precordium and down along the course of the aorta anteriorly and posteriorly. The confusion and delirium persisted with short periods of rationality. Blood pressure in the right popliteal artery was 150

systolic and 75 diastolic while in the brachials it was 44 over 30 at the same time. No remarkable neurologic signs could be found except the mental state mentioned.

Urine was negative except for albumin 1 plus. Leukocyte count was 19,600 on admission and differential not remarkable. Other counts were 15,000 and 12,500 on ensuing days. Blood serology was reported negative by the State Board of Health. Electrocardiogram done in the home as mentioned above revealed rate of 54, low voltage lead III with predominating Q of 2.5 mm., S-T interval of .36 sec. Repeated in the hospital February 19, 1941, the rate had risen to 90, the low voltage in lead III persisted, the Q was shortened to 2 mm., the R slightly raised over the prior record; the S-T take-off was high but fell sharply, and the S-T interval was .20 sec.

X-ray.—Portable films were taken because of the extreme condition of the patient and revealed a marked widening of the entire mediastinum to the right, with a sharp border throughout in almost a straight line. By fluoroscopy no pulsation could be seen.

Careful cross-examination of his relatives at this point revealed he had had attacks of dizziness in the summer of 1940 and one attack of indefinite chest pain in the fall. As a child he had pneumonia twice in Germany.

Otherwise his course in the hospital was marked by gradual rise of his temperature to 104° rectal the day before death. Oxygen was administered for nine days and markedly relieved his dyspnea. On the fifth day in the hospital his sputum was found to contain great numbers of types 3 and 11 pneumococci which were thought to accompany the increasing congestion of both lungs. Sulfathiazole was exhibited for four days without avail. Pulse rose steadily and rapid auricular fibrillation supervened on his seventh hospital day. Brachial blood pressure fluctuated, systolic reaching as high as 120 and diastolic 70. An expiratory wheeze was noted terminally.

The patient steadily failed and died with severe agonal expulsive effort on his tenth hospital day, dark fluid escaping from his mouth at the moment he expired.

Autopsy.—Only pertinent aspects of the autopsy will be mentioned. General examination was not remarkable. On opening the chest the aorta was found to be widened considerably, measuring 10 cm. at its widest point and the ascending portion was very thin walled, about the consistency of a large vein. The pericardium contained about 100 c.c. of blood, not under pressure. The heart on opening was normal except for marked enlargement of the left auricle. Coronary vessels and valves were intact and normal. There was a circumferential rent in the intima of the aorta about one inch above the aortic ring with a small sector attached anteriorly and a large thin walled sac on the convexity of about 250 c.c. capacity. Dissection had extended as far as the top of the arch and had enveloped the great vessels off the arch, apparently in life having compressed these to some extent, affording a probable explanation of the cerebral symptoms so prominent during the final days of life. Dissection also had extended proximally as far as the aortic ring, leaving a loose flap free in the lumen. Figures 1 and 2 reveal the intima of the aorta torn away at the proximal end from its origin at the aortic ring as described above, leaving the distal segment free in the stream except for the attachment to the arch, the proximal attachment having been divided at autopsy, thus leaving a large sac formed by the adventitia surrounding the "core" of the aorta at this point. Atherosclerosis was minimal.

The right lung was found to be tightly adherent to the chest wall throughout its extent. There was much bronchial exudate.

Microscopic: Sections of the aorta taken in three different locations revealed degeneration of the media in one section to a moderate extent.

Fig. 1. Specimen opened and with probe through the intimal "core" of aorta showing attachment distally to the arch and the great arteries of the neck still in position as branches of the original aortic lumen.

Fig. 2. The "core" pulled aside to show the dissection around the origins of the great neck arteries.

Comment.—In recent years there has been increased interest in these lesions and many new case reports have appeared. Several series of cases have been gathered and the pathology, pathogenesis, symptoms, signs, diagnosis, and even treatment and prognosis have been clarified, although treatment is still expectant and prognosis still bad.

For the purpose of this presentation the clinical picture is of chief interest especially as it ties in with the autopsy findings.

The pain in this case was characteristic but not definitely diagnostic of dissection. It began in about the second interspace left and descended to about the third. It was severe, intractable, unrelated to any circumstance apparently and responded only to heavy doses of morphine. It typically was piercing and felt in the posterior chest. Four of six cases reported by Hamburger and Ferris[1] experienced no pain.

The cerebral symptoms of excitement, restlessness, and anxiety were interesting and in view of the absence of cyanosis and dissection around the origins of the great vessels of the neck, might conceivably be ascribed to cerebral ischemia. The hypotension in both brachial arteries might be explained thus also, as hematuria, intestinal obstruction, hemiplegia, abdominal pain or other symptoms are described by those who have observed at autopsy shearing off or obstruction to vessels along the course of the abdominal aorta. This finding might also explain the relative hypertension in the femoral arteries which was found clinically.

The systolic and diastolic rough murmurs heard over the aortic valves, along the course of the aorta, and in the femorals are explained possibly by deformation of the aortic ring by the dissection proximally under the ring.

The lack of cyanosis except terminally might have been due to collateral superficial circulation to the head and neck.

This case differs from most reported cases in that there was no marked hypertension found, although no estimations made prior to the final illness were obtainable. No cases with hypotension in the upper extremities and a relatively high systolic and diastolic pressure in the lower extremities could be found in the literature out of several dozen reported cases.

Summary

A case of proved dissecting aneurysm of the aorta is presented in which the clinical diagnosis was supported by autopsy findings. A hitherto unmentioned clinical feature, cerebral excitement and hypotension in the upper extremities only, is described and a probable anatomical explanation is offered on the basis of autopsy fininds.

Reference

1. Hamburger, M., Jr., and Ferris, E. B.: Dissecting aneurysm. Am. Heart Jour., 16:1-11, (July) 1938.

UNIDENTIFIED LESION OF THE ANUS AND RECTUM ASSOCIATED WITH CARCINOMA OF THE STOMACH

ANTONIO E. MENDES FERRIERA, M.D.*
Lisbon, Portugal

A MAN, fifty-four years old, came to the clinic of Professor Dr. R. Monjardino at the University Hospital of Lisbon, Portugal, on June 29, 1938, complaining of diarrhea, loss of weight and strength. One uncle and one brother had died of pulmonary tuberculosis. Otherwise the family history was not significant. About one year previous to our examination he began to tire easily and felt little desire or ambition for working. He always passed two stools a day, but in the last year the feces became watery or semisolid, although they did not contain mucus, pus or blood. About one month before admission a physician massaged the anal region with some "ointment for the piles"; the course of treatment lasted twenty-three days. During the last ten days of these massages, when the bowels moved, the patient passed by rectum a large amount of pus and bright red blood.

Three months previous to examination he began to have pain in the anorectal region and at the time of defecation, he had severe pain in the anus extending into the rectum. Previous to the massage the pain was much more severe, but after this treatment he felt pain only during defecation. He did not feel pain or any other abnormal sensation in any other organ or region. He always had a good appetite and used to eat everything without indigestion; however, for the past few months he felt a little fullness and heaviness in the stomach after meals. He made no other complaints referable to the gastro intestinal tract. He had lost 20 kg. during the past six months.

General examination did not reveal anything abnormal. Respirations were twenty-two per minute; the pulse was rhythmic, had good pressure and a rate of 80 beats per minute. The blood pressure was 160 mm. of mercury systolic and 100 mm. diastolic. The temperature was 36.6° C. (97.9° F.).

Inspection of the anus revealed a large external hemorrhoid with an ulcer covering about all of its mesial surface. On digital examination an ulceroproliferative lesion was palpated on the posterior and

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lateral portion of the wall from the anus almost to the rectum. The lesion seemed highly destructive. The rectum was not fixed, there was no obstruction but the wall was thick and hard. The involvement of the anterior wall was much less and in certain parts seemed

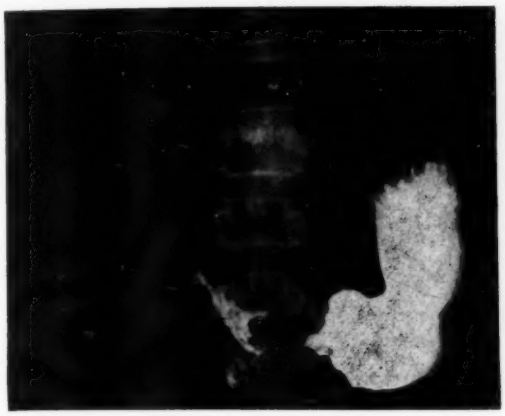

Fig. 1. Filling defect in antrum of stomach.

to be normal. Rectosigmoidoscopic examination of 24 cm. of the bowel above the anus revealed slight edema of the mucosa above the ampulla and in the ampulla itself and the scars of two small elongated ulcers in the posterior wall about 10 cm. above the anus. Below the ampulla, in the entire circumference, but particularly in the posterior and lateral walls, was seen an irregular surface showing many ulcers. These ulcers were elongated, dissecting in all directions, with diameters varying from a few millimeters to 2 cm. They were so numerous that their borders were almost confluent, forming in some places small projections like polyps. The mucosa between the ulcers was small, irregular, red and edematous. The bases of most of the ulcers were red and irregular but in some they were yellowish, gray and wrinkled. Tissue removed for histologic examination from the border of a rectal ulcer and the other from the border of the ulceration in the external hemorrhoid was reported to be "probably reticulosarcoma."

Studies of the morphology and chemistry of the blood made on July 1, gave the following results: coagulation time, six minutes; bleeding time, two minutes; hemoglobin, 78 per cent; erythrocytes, 3,980,000 per cubic millimeter; and the leukocytes, 9,050. On August 3 the value for hemoglobin was 58 per cent and the erythrocyte count was 2,920,000. Successive analyses of the feces were always negative for ova and parasites. Other laboratory tests gave negative results except the analysis of gastric contents after administration of histamine, which revealed complete and true achlorhydria with a total acidity that never exceeded fifteen, and reduced secretion. Roentgenologic study of the stomach and duodenum did not reveal any retention but did reveal a filling defect in the antrum suggestive of carcinoma (Fig. 1). Roentgenograms of the thorax and colon did not reveal any abnormalities.

The patient was given a soft general diet rich in calories and vitamins and supplemented with vitamin medication. For treatment during the first few days in hospital he had only warm rectal irrigations with rivanol, morning and night. On the nineteenth day in the hospital edema of the left foot and malleoli developed and then progressed up to about the middle third of the leg.

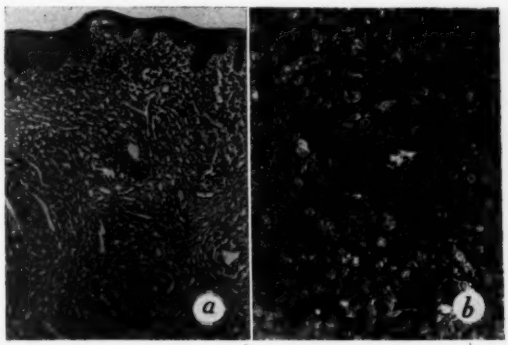

Fig. 2. Tissue from anorectal lesion; *a*, fibrous septa of variable thickness forming a network of spaces containing clusters of cells; *b*, cells forming typical reticulum (hematoxylin and eosin).

Because the edema was thought to be due to metastasis and to pressure on the pelvic veins, roentgen treatment was administered to the two lower abdominal quadrants and two sacral regions, but no improvement was noted. The patient's general condition was more or less unchanged during the next two months, but in October, 1938, he became rapidly worse and on January 25, 1939, he died. Necropsy was not performed.

Pathologic Examination

Tissue removed for biopsy when the patient was in the hospital was fixed in 10 per cent solution of formalin and embedded in paraffin. Serial sections were made and stained with hematoxylin and eosin, Mallory's method, and the Unna-Pappenheim method. Silver impregnation was done by the method of Tibor-Pap. On examination we saw squamous epithelium with a cornified layer and with keratin in spherical formations. These spherical formations were in the parts where the squamous epithelium was not yet keratinized and could be seen only in the spot where there was no keratinization of the superficial layers. The epithelium was thick, it had relatively deep papillæ in some places and thin and small papillæ in others, but generally speaking the papillæ were not deep. Below the epithelium the tissue was made up of fibrous septa rather variable in thickness; some of which were very thick, and contained clusters of cells. The septa anastomosed with each other forming a network of large spaces in which clusters of cells were seen (Fig. 2*a*).

The cells had round and hyperchromatic nuclei and a protoplasm which was faintly stained in some. The chromatin of the nuclei was arranged in fine granules equally distributed, and in some nuclei a small, well

outlined nucleolus could be seen. The protoplasm was rather basophilic. The main characteristic of these cells, however, was the continuity of their protoplasmic projections, which formed a typical reticulum (Fig. 2*b*). The sections stained by the Mallory method confirmed

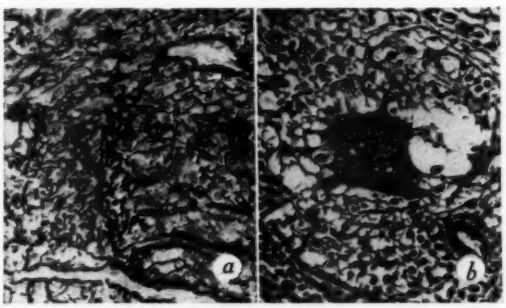

Fig. 3. Tissue from anorectal lesion; *a*, reticulum of fibers (impregnation with silver by Tabor-Pap method); *b*, single giant cell (Mallory's method).

this disposition showing even the insertion of the precollagenic fibers in the walls of the numerous blood vessels that the tissue contained. Impregnation with silver (Tibor-Pap) revealed among the cells many reticular fibers. These fibers extended with the prolongations of the cells which gave to the pictures a histoid aspect (Fig. 3*a*). The cells of the exudate were rare; however, there were a few plasma cells. In one place there was some hemorrhage.

One section stained by the Mallory method revealed one large giant cell of the Langhan's type (Fig. 3*b*). This cell had a reticular protoplasm, was more or less wedge-shaped owing to the existence of numerous protoplasmic projections of the cells close by and contained from fifteen to twenty small, well defined nuclei with prominent nucleoli. The nuclei were arranged side by side around the periphery of one of the hemicircumferences of the cell. Only two of the nuclei were in the interior of the cell.

The histologic appearance of the sections made from the tissue removed from the border of the rectal ulcer was similar, the only difference being, naturally, that instead of a squamous epithelium which is typical of the anal canal, there was columnar epithelium which is characteristic of the rectal lining.

Comment

In this case, from the clinical course it would be impossible to make conjectures about the malignancy or the benignity of the anorectal lesions, and we cannot prove whether or not the gastric tumor was a lesion different from, and independent of, the anorectal lesions. However, a lesion in the stomach of a similar type could not give the roentgenographic picture that we obtained. A picture of this type can be produced only by a polypoid tumor, most probably a carcinoma, and the anorectal lesions are characteristically destructive.

Let me consider then only the anorectal disease. The history is that of ulcerative proctitis or proctosigmoiditis. The rectosigmoidoscopic examination excluded immediately the possibility of the malignant lesions which are commonly found in the anorectal region. On the other hand the ulcers separately and the lesions as a whole were not similar to any of the ulcerative lesions we have seen and which are well described in papers and textbooks. I leave, however, an open point, the ulcerative form of tuberculosis. Primary tuberculosis of the anorectal region is very rare if it exists at all. There was no clinical or roentgenologic evidence of tuberculosis in our case and the proctoscopic appearance of the anorectal lesions did not correspond to descriptions of ulcerative tuberculosis in such a location.

The reason for the impression that this is possibly a tuberculous infection of the anorectal region, is the family history of tuberculosis. To support the impression of tuberculosis we have the fact of having found in one of the sections a giant cell of the Langhan's type, and also the progressively increased relative lymphocytosis in the differential count.

On histologic examination the lesion had an aspect very similar to that of reticulosarcoma, and this would be the final diagnosis if the cells had not been so small and if such a malignant lesion, at least to our knowledge, had been previously described in the anorectal region. The one giant cell we found is not enough to make a histologic diagnosis of tuberculosis, but associated with other factors is undoubtedly one more important link in the diagnosis of the probable tuberculous nature of the lesions. If the lesion had been a reticulosarcoma, the roentgen therapy, if it had not healed the lesions at least temporarily, would certainly have modified them, for reticulosarcomas are radiosensitive. This treatment, however, had no action on the lesions.

The idea that the anorectal lesions in discussion were benign is supported by the therapeutic results obtained in a later somewhat similar case.

SURGICAL TREATMENT OF TUBERCULOSIS

The trend toward surgical treatment of tuberculosis is perhaps the most significant and far-reaching change which has come about in the tuberculosis hospital field. This has involved changes in design and equipment of the hospital, in the organization by the staff, in provision for nursing of surgical cases, and development of closer relations with general hospitals. Wherever the tuberculosis hospital is not prepared to meet the demand for better operating rooms, laboratories, and roentgen ray equipment, the facilities of the general hospital must be utilized.—Editorial, *Penna. Med. Jour.*, March, 1940.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

Frank C. Andrus, Pathologist

SCHILDER'S DISEASE

The case is that of a white male child who died at the age of five years. When he was first seen at the hospital in November, his mother stated that the child had always been bright. He had learned to speak at the age of two years and was walking well when fifteen months old. He was trained for both bowel and bladder at fifteen months. The only illness he had had was whooping cough. Since approximately three weeks before admission the mother had noted a gradual loss in the child's hearing ability, whereas until that time no hearing defects had been noted. Along with this deafness, the child became listless and unresponsive. Moreover, the boy's speech, although always impaired by a lisp, had become considerably more sluggish and more difficult to understand. On one occasion he had refused to get out of bed, preferring to remain there. The child's parents were both living and well. He had a three-year-old brother who was in good health.

Physical examination at the time of admission revealed the following: Temperature was 98 degrees and the pulse 96 per minute. The respiratory rate was 18 per minute. The child was described as being well nourished and well developed. He appeared to be sluggish mentally. The scalp was normal. The pupils reacted to light and accommodation. Ophthalmoscopic examination revealed normal eyegrounds. There was considerable mucopurulent postnasal discharge. The ear drums appeared normal as were the external auditory canals. The throat was negative, but there was an absent gag reflex. The entire throat could be touched with the tongue blade without evoking any gag reflex. Motions of the tongue were normal. The corneal reflex was absent. There was no stiffness of the neck. Examination of the lungs and heart revealed no abnormalities. The abdomen was normal. The Kernig sign was positive. The child stood with his legs far apart and walked with an unsteady gait. The tendon reflexes were as follows: Knee jerks—left three plus, right two plus; ankle jerks—left two plus, right two plus; ankle clonus—present on the left but unsustained, absent on the right; biceps—minus one on the left, minus one on the right; triceps—minus one on the left, minus one on the right; Hoffman's—zero on the left, zero on the right; Babinski—negative bilaterally. Except for the eighth, the cranial nerves were reported as being normal. Laboratory studies were reported as follows: The urine had a specific gravity of 1.017 and was alkaline in reaction. It contained a very faint trace of albumin and a faint trace of sugar. There were no casts, red blood cells, or pus cells. Several other urinalyses were done but none of them showed any albumin or sugar to be present. Hemoglobin was 89 per cent; erythrocyte count was 4,790,000 and the leukocyte count was 8,150. There was a normal distribution. Spinal fluid was examined and was found to be colorless, clear and to contain 25 mg. of protein per cent, 46 mg. of sugar per cent and no cells. Serological tests for syphilis were negative. The Mantoux test was also negative. An encephalogram was made after the introduction of ethylene gas. There was good filling of the ventricles which were not dilated and showed no distortion. None of the gas entered the subarachnoid space.

The patient was lethargic most of the time. At times he did not recognize the doctor—those he had seen before he thought to be strangers. No specific treatment was instituted and the child was discharged to his home for nursing care.

He was again seen in January. During the interval, he had gained slightly in weight and his mother thought that he was somewhat improved. However, he continued to walk very poorly, dragging his left foot and continuing to have a great deal of trouble in hearing. His mother had noted that he was having difficulty in focusing his eyes. He had developed twitching movements of the muscles of his face and arms. Physical examination revealed the same findings as before, except that the Babinski reflex was now positive on the left side. Laboratory examinations were again made but showed no change from the previous time. The child developed periods where he would remain stuporous for as long as forty-eight hours and then gradually regain consciousness. He was seen to lie in bed breathing heavily. There was no spontaneous activity except roving of the eyes with spontaneous horizontal nystagmus. He did not respond to audible or visual stimuli. The pupils reacted to light and the discs were well defined. There was a slight suggestion of edema but no hemorrhages or exudates were seen. The left side of the face and the left extremities were weaker than the right. Occasionally short twitching movements of the right side of the face and the right arm were seen. The child again gradually improved. He took his meals fairly well and was more coöperative and at times he would play with toys which were given him.

He was admitted for the last time to the Pediatric Service the following May. Since his previous hospital

stay he had been practically bed-ridden because of inability to walk. He had become incontinent of both urine and stools. He would lie quietly, exhibiting no spontaneous activity and demonstrated no interest whatsoever in his surroundings. He had developed difficulty in chewing food and also in swallowing. It was the difficulty in swallowing that caused the parents to hospitalize the child again. Examination at this time revealed the patient to be rather markedly emaciated and dehydrated. There was contractures of all four extremities and a waxy flexibility in the arms. The Babinski reactions were now positive on both sides; the knee jerks were hyperactive; and the Hoffman reflexes were now positive. Laboratory examinations were again carried out but they showed no change from those reported earlier. The patient was fed through a nasal catheter which was inserted into the stomach. Shortly after admission his temperature rose to 104 degrees and he continued to have a high fever. Occasionally the child would whine and cry out weakly, otherwise he would lie quietly and would not respond to any but painful stimuli. It became increasingly difficult to maintain the child's nutrition, poor though it was, and death came approximately eight months after the onset of the illness. Clinical diagnosis: Encephalitis periaxialis diffusa (Schilder's disease).

Autopsy Findings

Dr. Harold Freedman: The body was that of a very poorly developed and emaciated white child. The left hand was hyperextended at the wrist and both feet were plantar flexed. The peritoneal cavities and the abdominal organs appeared to be entirely normal. The heart was normal; the lungs were somewhat increased in weight and they showed patchy areas of consolidation in the hypostatic areas. No abnormalities were noted in the genito-urinary tract. There were no enlarged lymph nodes. Examination of the head revealed a normal scalp and skull. The meninges were all normal. There was perhaps a slight increase in the amount of cerebrospinal fluid in the subarachnoid space. External examination of the brain revealed no particular gross abnormalities except in the occipital lobes. Here there was a marked narrowing of the convolutions to approximately one-half of their normal size and this narrowing was almost completely restricted to the occipital lobes. On palpating the brain, the occipital lobes were found to be much firmer than the remainder. They had a rubbery, hard firmness. Sagittal section through the brain revealed gross cystic degeneration of the splenium of the corpus callosum. Coronal sections showed the white substance to be replaced by patchy areas of induration which radiated out toward the convolutions but never extended into the cortex. These areas were also grossly visible, having a more grayish appearance. Anatomic diagnosis: (1) Schilder's disease; (2) bronchopneumonia.

Discussion

Dr. Frank Andrus: Microscopic sections reveal numerous large areas of demyelinization and gliosis in the subcortical white matter of the cerebrum. In many areas phagocytic cells containing lipoid are present. There is an infiltration of lymphocytes in the adventitia of many of the small blood vessels. Nowhere is there any exudative inflammatory reaction. The cortical portions of the brain are not in any way involved. Schilder's disease is not a true encephalitis. We find no real evidence of inflammation. It derives the term "periaxalis" because it involves primarily the medullary sheath leaving the axis cylinder at first unaffected.

Dr. Milton Hurwitz: This condition was first described by Schilder in 1912, but it was not until 1924 that the syndrome first appeared in the American literature. At first the diagnosis was made primarily by a process of exclusion but we have learned from the cases reported that in spite of the variety of symptoms and the variable order in which they appear, there are certain features which form a basis for the clinical diagnosis. In 1930, Gasul collected seventy-one cases which had been reported up to 1929 and found that it was primarily a disease of children and adolescents, over one-half of the cases occurring before fourteen years of age and over one-third before the age of twenty-five years. In five instances, however, the patients were over forty-five years of age. Twice as many males are affected as females. The onset may be either acute or gradual. The duration of the disease from the onset of the symptoms until the time of death may be as short as a few days to as long as thirteen years. Although the disease is considered fatal, instances of recovery with permanent defect have been reported. Most of the cases seem to appear sporadically, yet in some there appears to be familial tendency, eight of thirteen children being affected in a family reported by Symonds, though not all of those were established as being Schilder's disease. The condition seems to be similar to a congenital demyelinating disease of lambs known as "swayback." The chief early clinical sign is cerebral blindness which becomes complete, to which is added mental reduction and increasing spastic paralysis. Unsteadiness from parietal involvement and deafness from temporal involvement may be conspicuous. The dementia increases and passes into coma which terminates the illness. The condition, usually bilateral, may commence on one side only and be confined to one side. In our case, the first sign was progressive deafness and at no time was blindness an outstanding symptom. Visual disturbances seem to be more prominent in the older patients and may appear in the form of misty vision, scotomata, diplopia, hemianopia, or even acute blindness. In the younger patient, the most frequent early symptoms are convulsions and disorders of gait; psychic disorders of any kind occur in almost all patients—the most frequent are forgetfulness, dullness, irritability, confusion, euphoria, disorientation, etc. The motor symptoms, of course, depend entirely upon the extent and location of the cerebral involvement. In practically all instances a typical upper motor neurone lesion syndrome is encountered. Paralysis is usually progressive and first manifests itself as a paresis. Quadriplegia is common and the spasticity may become so severe that the patient lies in complete opisthotonos with contractures of both arms and legs. The atrophy of the muscles is usually not marked. The temperature is usually normal in this disease until intercurrent infection supervenes. The disease must be thought of, especially in children, when the following triad of symptoms are found: progressive loss of vision of a cerebral type; progressive spastic paralysis; and progressive dementia. The etiology of the disease is entirely unknown. It is probably related to other demyelinating diseases such as disseminated sclerosis. No treatment has been found to be effective in arresting the course of the malady.

HOMEOPATHIC AND ECLECTIC MEDICINE IN MINNESOTA*

By James Eckman

Rochester, Minnesota

(Continued from September issue)

Certain Homeopathic and Eclectic Pioneers

Adolphus Fitz Elliot (1836-1901) was an eclectic physician whose name is perpetuated today in the Elliot Memorial Hospital of the University of Minnesota in Minneapolis, toward the erection of which $114,000 was bequeathed by Dr. Elliot's widow in 1911. Dr. Elliot was born in Corinna, Maine, came to Minneapolis in 1855, and served in the Third Minnesota Infantry Regiment during the War of the Rebellion. Hamilton[31] said that in the *Minneapolis Daily Tribune* of May 29, 1867, the professional card of J. S. Elliot and A. F. Elliot appeared, with the announcement that A. F. Elliot "embalms the dead." Dr. Elliot was one of the founders of the old Minnesota Academy of Natural Sciences, which he served as secretary and curator in 1876 and as president some years later, and to which he gave many specimens of mineral, rock, fossils and flora of Minnesota. In 1869, at Owatonna, he helped to found the Minnesota State Eclectic Medical Society. He apparently was the inventor of a nasal douche for use in treatment of diphtheria and infections of the throat and nasal passages. He presented this douche to the Minnesota State Eclectic Medical Society at that group's fifteenth annual session at Owatonna in May, 1883.[65] He was a member of that society's first board of censors.[48] He died in Minneapolis on April 26, 1901.

Not much is known about **Dr. Trevanion N. Berlin** (1823-1911). He was living in Farmington in 1867; he came to Saint Paul in February of that year to assist in the organization of the Minnesota State Homœopathic Institute.[6] He was the inventor of "Berlin's Hydrastis Uterine Supporter; A Treatment for Ulceration of the Womb, Prolapsus, and all Varieties of Female Weakness." This appliance was sold by the well-known homeopathic pharmacist, Thomas Gardiner, at his pharmacy at 306 Nicollet Avenue in Minneapolis. It was described in the *Minnesota Medical Mirror*[82] as follows: "This is a novel invention and a new method of medication. It is a cup-shaped ring of wax which dissolves slowly. Extract is incorporated into the instrument which theoretically meets the requirement for a constant anodyne and tonic application to an irritable os, while at the same time it is a brace against a descending uterus." Dr. Berlin was still living in Farmington in 1882, but by 1887 he had moved to Minneapolis. It is not probable that he was graduated from a medical college. He was licensed to practice medicine in Minnesota by exemption on November 27, 1883.[83] In about 1895 he moved from Minneapolis to the state of Washington, and he died at Kent in that state on June 16, 1911, at the age of eighty-eight years.[84]

Armstrong[56] has contributed a provocative piece of information in the revelation that one **Dr. George Hadfield,** a homeopathic physician, came to Saint Paul in August, 1854.[75] Armstrong has traced out the curious career of Hadfield insofar as available evidence permitted, and has shown that this early homeopath not only had an office in Saint Paul, but also edited and published a strange little journal called the *Minnesota Homœopath,* of which only one copy, now in possession of the Minnesota Historical Society, is known to exist.[56] It probably could be suggested that this diminutive publication was the first medical journal to be published in Minnesota. Hadfield, in 1858, had an office on "4th Street between Fort and Exchange."[85] It is thought that Dr. Hadfield died in Cincinnati after 1870.

Dr. Hadfield was not, however, the first homeopath to come to Saint Paul. Practitioners of the system themselves considered **Dr. George S. Sperry** of New York to be the first of their kind in Saint Paul.[6] Armstrong[75] wrote that Dr. Sperry was in Saint Paul in 1853, and that he served as medical examiner for the New England Mutual Life Insurance Company. Homeopaths[6] claimed that he was in Saint Paul in 1852. In August, 1854, Dr. Sperry had an office on Third Street in Saint Paul, opposite C. E. Mayo & Company, and he lived at the Winslow House.[75] His professional card was still being published in the Saint Paul *Pioneer* at the end of 1854, and he remained in that city for four more years.[75] He left town in 1859 because of some local scrape in which he had become involved.[75] When the census of 1857 was taken in Minnesota Territory for the purpose of determination of Congressional districts in the event the Territory became a state, Dr. Sperry's age was given as fifty years.[86] If this figure was correct, the year of Sperry's birth would be 1807. He apparently was born in the state of New York.

Homeopaths[6] also maintained that **Dr. Z. B. Nichols** settled in Saint Paul in 1852, and that he went to Northfield in 1853. He later became physician to the Minnesota State Institution for the Education of the Deaf, Dumb and Blind which was opened in 1863 at Faribault. He was elected president of the Minnesota State Homœopathic Institute in 1873, and in 1882 was reported to be practicing in Portland, Oregon.[6]

Dr. A. E. Boyd (or "E. A. Boyd," as he is called in the *Transactions* of the Minnesota State Homœopathic Institute) was born in Maine in 1817. He came to Saint Paul in 1854, and remained there for a few years, later moving to a farm in New Canada Township in Ramsey County. He was one of the founders of the Minnesota State Homœopathic Institute in 1867, and later served as treasurer of that body. Once he was expelled from the institute for refusal to turn in the requisite reports and moneys, but he was made an honorary member of the institute in 1887. Armstrong remarked that Dr. Boyd died on June 4, 1888.[75] He was said to have known Dr. Hadfield. In 1870 Boyd received the degree of Doctor of Medicine from the Minnesota State Homœopathic Institute.

Dr. Heinrich Alexander Leopold von Wedelstaedt (1817-1900) was born in East Prussia, Germany, and was graduated in "regular" medicine from the University of Koenigsburg at the age of nineteen years.[87] His early life and adventures seem so amazing that it is doubtful if many other early day Minnesota physicians were exposed to such harrowing and exciting circumstances

during their careers. It was said[88] that Dr. Von Wedelstaedt's father was a circuit judge in Prussia, and that he was accustomed to journey from one town to the next, in the course of his duties, in "a gorgeous equipage with his hounds and outriders with trumpets." The Von Wedelstaedt estate was adjacent to that of Prince Otto Eduard Leopold Bismarck-Schoenhausen (1815-1898), and the Prince's mother was young Von Wedelstaedt's godmother.[88] Heinrich von Wedelstaedt and the young prince were playmates, and when Dr. Von Wedelstaedt was married, years later, he named one of his sons after the Iron Chancellor.[87] It is probable, but not certain, that young Von Wedelstaedt left Germany during the Revolution of 1848, which sent so many of his countrymen to the United States. He shipped on a sailing vessel for America, and took most of his considerable fortune with him. The ship was wrecked off the coast of Cuba, and it sank with the young man's money and personal effects. He managed to reach the shore, and for the next few years supported himself by preaching in the Lutheran Church, to the ministry of which he had been admitted in Germany. His son, Dr. Bismarck von Wedelstaedt,[87] informed the author that his father studied medicine in New York and other Eastern cities for a while, and then ventured westward. In Kentucky, he met and married Miss Elizabeth LeFebvre, who was said[87, 88] to have been the daughter of Pierre François Joseph LeFebvre (1755-1820), Duke of Danzig and Marshal of France. Dr. Von Wedelstaedt spent some time in the city of Cincinnati, where he became acquainted with Dr. Joseph H. Pulte,[9] who founded the Pulte Medical College (homeopathic) of Cincinnati, as previously noted. In 1857, Dr. and Mrs. Von Wedelstaedt came to Saint Paul, possibly at the instance of Dr. George Hadfield[56] and Dr. Pulte.[56] Armstrong[56] said that Dr. Von Wedelstaedt's professional card appeared in the Saint Paul *Pioneer* and *Democrat* in November of 1857. He appears to have been a substantial and much respected citizen, and his general popularity no doubt was enhanced by the fact that he could speak English, French, German, Spanish and Italian fluently.[87] One of his sons[88] said that he was a master of no less than thirteen languages. In 1863 he lived at Wacouta and Tenth Streets in Saint Paul, and maintained an office on Third Street between Minnesota and Robert Streets. He was an officer of Saint Paul Lodge No. 3 of the Masons, and served as one member of a committee of three physicians which on February 14, 1867, drafted the articles of association of the Minnesota State Homœopathic Institute at the old Globe Hotel in Saint Paul.[6] He also served as recording secretary of the convention which established the institute.[6] He was elected secretary-treasurer of the institute in 1871, 1872 and 1873, and was elevated to the presidency of that body in 1874.

Thomas McLean Newson[89] (1827-1893), who came to Saint Paul in 1858, and presumably knew Dr. Von Wedelstaedt, wrote a pleasant sketch of him in 1886:

> Dr. H. A. L. Wedelstaedt is a tall man, of quick motion, and a great admirer of secret organizations. He came to Saint Paul in 1857 and carried on the profession of a homeopathic physician up to 1877, or twenty years, when he removed to Deadwood, where he now is. He is a good physician, sociable in his nature, very fond of display, and is well remembered by the older residents of the city. He has a fine family, and his oldest son is now in business in this city.

Vedder,[32] who apparently reproduced Newson's estimation of Dr. Von Wedelstaedt almost word for word, repeated Newson's assertion that the pioneer physician left Saint Paul for Deadwood in 1877. Dr. J. F. D. Cook,[90] secretary of the South Dakota State Board of Health, reported that Dr. Von Wedelstaedt

was licensed to practice medicine in the Territory of Dakota on August 1, 1887, and that Dr. Von Wedelstaedt told the examining officers he had been awarded the degree of Doctor of Medicine by the Minnesota State Homœopathic Institute in 1867. Dr. Von Wedelstaedt's name did not appear in the "Directory of Homœopathic Physicians of Dakota" which was published on page xi of the advertising section of the old *Minnesota Medical Monthly* for May of 1887 (volume 2, number 1), but it was announced within this directory that the list of names was not complete. Dr. Bismarck von Wedelstaedt[87] of Long Beach, California, who generously supplied the author with much valuable information concerning his father, wrote: "He was attracted to Deadwood, South Dakota, became interested in mining activities, and as there was a scarcity of physicians, he carried on quite a practice in that locality. He made frequent trips to Saint Paul for medical consultation and visits with his family." Another son, Dr. George S. von Wedelstaedt[88] of Hollywood, California, said that his father "was the discoverer of the cause of trichina in the human body, and was given due credit for this at the time," and that the elder man was the personal physician and warm friend of Governor Alexander Ramsey (1815-1903) and Archbishop John Ireland (1838-1918).

Dr. Heinrich A. L. von Wedelstaedt died in Deadwood, South Dakota, on March 19, 1900, and as if in commemoration of a life replete with adventure and incident, he was buried in Mount Moriah Cemetery in Deadwood, not far from the grave of the redoubtable James Butler ("Wild Bill") Hickok (1837-1876), famous Union spy of the War of the Rebellion, overland stage driver, and border marshal, who was murdered in Deadwood on August 2, 1876, by a ruffian named Jack McCall.

Dr. William Caine (1819-1867) was said to have settled in Saint Paul in the summer of 1857.[91] He was born on the Isle of Man on August 1, 1819, and came to the United States at an early age. He was graduated from the Medical Institution of Geneva at Geneva, New York (now the University of Syracuse College of Medicine at Syracuse), in 1842, and practiced as a "regular" physician until he ventured west to Cleveland, Ohio, where he entered the old Western College of Homœopathic Medicine, which had been organized in 1849.[91] Dr. Caine was graduated from this college in 1852, and after practicing homeopathy for five years at Ravenna, Ohio, where his son was born, he removed to the Territory of Minnesota.[91] Armstrong[86] wrote that Dr. Caine's professional card appeared in the Saint Paul *Pioneer* on January 4, 1859, and that in 1862 Dr. Caine offered $25 for five Indian[92] scalps, no doubt because he was incensed by the great Sioux uprising of that year in Western Minnesota. It was said that Dr. Caine served two terms as city physician of Saint Paul and and county physician of Ramsey County,[91] and that **Dr. Charles Draper Williams** (1812-1882), a homeopathic physician from Cleveland, Ohio, was his partner from 1861 to 1864.[86] He earned $900 in practice in Saint Paul in 1866.[3] In 1867 Dr. Caine was living at Stillwater, and in February of that year he became one of the founders of the Minnesota State Homœopathic Institute.[6] He died on June 19, 1867, of "sunstroke."[91]

Dr. Caine had a son, **Dr. William Harris Caine** (1854-1902), who was born in Ravenna, Ohio, on May 10, 1854.[83] He came to Minnesota in 1860, and was graduated from the old Hahnemann Medical College and Hospital of Chicago in 1877. He established a homeopathic hospital in Stillwater on March 27, 1881,[44] as has been shown, and was licensed to practice medicine in Minne-

sota on October 23, 1883.[83] He seems to have been a rather successful if somewhat turbulent physician. He was county physician of Washington County in 1881, and he was also surgeon for the Chicago, Milwaukee and Saint Paul Railway Company.[93] In 1883 he was elected a censor of the Minnesota State Homœopathic Institute, and in 1885 he was a delegate to the annual convention of the American Institute of Homœopathy.[93] In an era in which veteran soldiers of the War of the Rebellion were highly esteemed, he was elected (1885) secretary of the Association of Sergeants of the First Minnesota Infantry Regiment. He also achieved at least a measure of fame in the fact that in about 1881 he discovered a true leper in Washington County.[93] Dr. Caine came to grief in Stillwater in 1881, when he was excluded from practice in the Stillwater City Hospital "for conduct unbecoming a physician and a gentleman."[45] But Dr. Caine apparently was not one to be thus deterred: he threatened to sue the managers of the hospital, and was promptly re-admitted to practice therein. At his death, which occurred on September 16, 1902, he was living at 901 Chicago Avenue in Minneapolis. The certificate of his death was signed by Dr. Alonzo Potter Williamson (1854-1920), at that time dean of the University of Minnesota College of Homœopathic Medicine and Surgery.[83]

Dr. William Harris Caine also had a son, **Dr. Arthur T. Caine** (1875-1935), who was born in Saint Paul and was graduated from the University of Minnesota College of Homœopathic Medicine and Surgery in 1899. In 1921 he became superintendent of the Anoka State Asylum. He died in Minneapolis on September 12, 1935.[94]

Dr. Charles Draper Williams (1812-1882) came to Saint Paul in 1861,[86] and entered into partnership with Dr. William Caine (1819-1867); in 1862 the two physicians served jointly as physicians of Ramsey County. They severed partnership in 1864. It was said that Dr. Williams had been one of the founders of the Cleveland Homœopathic Medical College in 1849, and that he had been professor of the theory and practice of medicine in that institution.[91] Homeopaths said that his introductory address at the start of his first course of lectures at the college in 1850 was the first oration on the subject of homeopathy ever delivered in Cleveland.[91] Dr. Williams was not by training a homeopath. He had been graduated as a "regular" physician from the Fairfield Medical College in Herkimer County, New York, in 1835, and did not embrace homeopathic practice until 1840. In 1865, according to Armstrong,[3] Williams became president of the Vermillion Falls Gold Mining Company of Saint Paul, and signed his name as "C. Draper Williams." He was one of the founders of the Minnesota State Homœopathic Institute[6] and in 1868 was president of the institute. He was the first treasurer of the old Ramsey County Homœopathic Medical Society, which was founded in Saint Paul in February, 1872.[32] Armstrong[3] unearthed the fact that Dr. Williams made $1,535 during 1866, and that he made $1,479 for the year ending May 1, 1867. Such incomes probably were excellent in point of buying-power in Saint Paul in the sixties.

According to Dr. Williams' own statement, he at one time conducted experiments on Alexis St. Martin (1800?-1880), after Dr. William Beaumont (1785-1853) had died and had left St. Martin to shift for himself. In 1868 Dr. Williams, in an address called "Consumption of the Lungs,"[95] observed:

> Experiments made by Prof. Jehu Brainerd and myself before the class of the Western College of Homœopathy, at Cleveland, Ohio, in 1855, on the famous Alexis St. Martin, demonstrated that whenever the branches of the pneumogastric nerve were irritated in the

stomach, he invariably coughed vehemently, referred the irritation not to the point where it was made in the stomach, but to the root of the lungs; the exact point where the joining by the plexuses of these nerves by the sympathetic occurs; showing beyond doubt the transmission of irritating agencies through these organs, and their arrest at the point where tubercles first make their appearance, and where they are most destructive.

Dr. Williams died in Saint Paul on May 7, 1882.

Dr. Thomas Chatterton Schell (1823-1882) probably had no great ability as a physician, but he assuredly was a man of intensely interesting character. He was born in England in 1823, and Vedder[32] said that he had been educated in England at a branch of King's College. He came to America in 1836, and began the study of medicine with Dr. D. W. Mathews of Rochester, New York. Four years later he became partner to Dr. Mathews, and remained so for two years, at the end of which he removed to Detroit, Michigan, to practice there for a year. Geneseo, New York, was the next town in which he settled, and he spent three years there. He was then appointed to be physician to the Marine Hospital in the Sandwich Islands, a post he occupied for two years. Leaving the marine service, he returned to America to settle in Lockport, New York, but soon went to New York City. He came to Saint Paul in 1859, according to Armstrong.[86]

"Doctor Schell was not a man of great ability," Armstrong[96] wrote, "but soon established a large practice. He was very fond of the good things of life. He got drunk regularly every day at one o'clock and told his patients so, advising them to call him in the morning as he could not make calls in the afternoon."

Dr. Schell made $959 in 1866,[3] and in the same year seems miraculously to have escaped disaster. Early in the year, it was written,[3] the old Cosmopolitan Hotel at Third and Franklin Streets in Saint Paul was attacked by fire, only the gutted stone walls remaining upright. On June 25, 1866, a terrific wind toppled the crumbling walls and part of them crashed down on the roof of Dr. Schell's home. "It was feared that the doctor was killed, but those who started to clear away the ruins were encouraged by a flood of expletives in his well-known voice. When he was extricated, it was found that his left leg had sustained a compound fracture which confined him to bed for some months."[3]

Dr. Schell was one of the founders of the Minnesota State Homœopathic Institute in 1867, and was the first president of the Ramsey County Homœopathic Medical Society, organized in February of 1872. He died on September 2, 1882.[97]

It is interesting to notice that at least two pioneer homeopathic physicians were medical editors before they came to Minnesota. One of them died in Saint Paul. **Dr. A. P. Skeels** (1829-1872) was graduated from the Homœopathic Medical College of Pennsylvania (now the Hahnemann Medical College and Hospital of Philadelphia) in 1867, and went west to Saint Louis in 1868, where he became professor of materia medica in the old Homœopathic Medical College of Missouri. It was while he was in Saint Louis that Dr. Skeels served as editor of the *Western Homœopathic Observer*. He came to Northfield, Minnesota, in January of 1870, suffering from pulmonary tuberculosis, and he died at Northfield on May 16, 1872.[91] Dr. Skeels was said by Vedder[32] to have been the preceptor of **Henry Hutchinson** (1849-1910) of Saint Paul, who was born in Montreal on August 20, 1849, and came to Northfield, Minnesota, with his parents in 1858. Dr. Hutchinson was graduated from Carleton College, and from the Hahnemann Medical College and Hospital of Philadelphia in 1874. He

came to Saint Paul in 1878 and was appointed to the Minnesota State Board of Health and Vital Statistics in January, 1895, became vice president of the board in 1896, and president of it in April, 1904. He was still president of the board when he died in Algiers on December 1, 1910.[98] It is logical to suggest that Dr. Skeels not only schooled young Hutchinson in the principles of homeopathy at Northfield, but also persuaded him to go to the Hahnemann Medical College and Hospital of Philadelphia, from which Skeels himself had been graduated.

Dr. James T. Alley (1831-1878) was born near Poughkeepsie, New York, on March 30, 1831, and attended the University of the City of New York Medical Department, from which he was graduated in 1854.[91] At graduation Dr. Alley was a so-called allopathic physician, and he remained so for about two years thereafter. In 1856, however, he became a homeopath, and from that year until 1864 he "was one of the associate editors and leading contributor to both the *North American Journal of Homœopathy* and the *U. S. Journal of Homœopathy*, besides writing much for other journals."[91] In his obituary[91] it was said that Dr. Alley came to Saint Paul in 1867, but Armstrong[3] wrote that he settled in that city in 1866. He was suffering from pulmonary tuberculosis when he reached Minnesota, and he died in Saint Paul on September 17, 1878, of that disease.[91]

Dr. Eli Morton Morehouse (1835-1891) was born in Warren, Ohio, on March 2, 1835, and was graduated from the old American College of Medicine and Pennsylvania Eclectic Medical College of Philadelphia (later the Philadelphia University of Medicine and Surgery) in 1853.[99] He came to Owatonna in 1855. He was one of the founders of the Minnesota State Eclectic Medical Society at Owatonna on May 26, 1869,[48] and may even himself have sent out the call for the meeting which was to found this society. He was elected first president of the society, and no doubt also belonged to the Southern Minnesota Eclectic Medical Society, founded on November 14, 1869.[48] Dr. Morehouse was a member of the Minnesota State Senate in 1878. He died in Owatonna on May 23, 1891.[99]

Dr. Staunton B. Kendall (1808-1897) was born at Rutland, Vermont, on March 17, 1808.[100] When he was about twenty years old his family moved to Canton, Pennsylvania, where the young man succeeded in obtaining a medical education, probably under a preceptor. In the year 1856 he came to what is now Dodge Center, Minnesota, where he settled on land which he obtained from the United States Government. He sold this land in 1862 and in about 1865 removed to Byron, Minnesota, where he remained until his death. Leonard[101] said he built the first hotel in Byron. His granddaughter, Miss Aurilla Kendall,[100] has reported that Dr. Kendall's practice embraced a region of about thirty miles in radius, and that he often called Dr. William Worrall Mayo (1819-1911) into consultation after Dr. Mayo had settled in Rochester. Miss Kendall[100] wrote that her grandfather dispensed his own drugs in the village store owned by his son (Miss Kendall's father), and that "the older settlers say that they could get prescriptions filled in Byron when they couldn't get them in Rochester." Miss Kendall doubted that her grandfather had been graduated from a medical college. On May 14, 1872, at the second annual session of the Southern Minnsota Homœopathic Medical Society at Owatonna, Dr. Kendall was elected a member of the group.[6] He was licensed to practice medicine in Minnesota by exemp-

tion on November 28, 1883.[83] He died at Byron on November 9, 1897, and is buried at the cemetery in that village.

Dr. Wilson Adolphus Allen (1834-1934) was born in Pendleton, Indiana, on March 6, 1834, and settled in Plainview, Minnesota, in 1865. He had studied medicine under a preceptor in Indiana, and settled in Rochester in 1872. He was elected to membership in the Southern Minnesota Homœopathic Medical Society on May 14, 1872.[6] In 1879, Dr. Allen was graduated from the Hahnemann Medical College and Hospital of Chicago, and in 1883 he completed a post-graduate course of study at that institution. He was made a member of the Minnesota State Homœopathic Institute and he also joined the American Institute of Homœopathy. Dr. Allen, according to Leonard,[102] was particularly ingenious as an inventor, and was elected a member of the Academy of Inventors of France. When in the nineties in Rochester the Riverside Hospital was organized by certain clergymen and homeopathic physicians, Dr. Allen gave ardent support to the new venture, which came to a disastrous end when "A famous homeopathic surgeon was imported from a neighboring city to operate. His work was very unsuccessful, and, the confidence of the community being shaken, patients were not forthcoming, and the Riverside Hospital died a gradual death."[103] Dr. Allen was elected mayor of Rochester in 1895, and lived to the incredible age of 100 years. In later years he was a member of the Minnesota State Medical Association. He died in Rochester on May 11, 1934, death occurring after he had sustained a severe fall to the ground.[104] *The Saint Paul Pioneer Press* in its issue of July 20, 1930, published a feature story concerning Dr. Allen's life and career, written by Kathryn Gorman.

Dr. J. M. (or I. M.) **Westfall** (1821-1888) came to Rochester from Lafayette, Indiana, in 1860, as a Universalist minister.[105] He preached at Rochester, Mantorville, Cascade and Spring Valley for a number of years, and then began to practice homeopathic medicine and to farm. It is not known that he was a graduate of a medical college or that he had undergone training in medicine. Leonard[105] said that he was something of a political figure in Olmsted County, and that he was a member of the Anti-Monopolist Party. He was elected first president of the Southern Minnesota Homœopathic Medical Society, which was organized at Owatonna in October, 1871,[6] but he did not remain in Minnesota for many years. On July 7, 1887, Dr. Westfall was examined at Miller, in what is now South Dakota, for a license to practice medicine in the Territory of Dakota, and it is recorded that such a license was issued to him on July 16, 1887.[63] At that time he was living in Watertown. He was apparently a member of the Dakota Homœopathic Medical Association, for his name appeared in the "Directory of Homœopathic Physicians of Dakota" which was published on page xi of the advertising section of the *Minnesota Medical Monthly* for May, 1887 (volume 2, number 1). This directory was inserted by the aforementioned association. Dr. H. A. Tarbell,[106] of Watertown, South Dakota, who kindly sent the author data concerning Dr. Westfall, wrote that Westfall seems to have practiced homeopathy to a limited extent in and about Watertown, and that he died on December 29, 1888, in Watertown. His wife, Amanda Westfall, died in Watertown on January 12, 1888. A son, Murray Westfall, died in 1917.

Dr. William H. Woods (1823-1903) was born in Ohio in 1823, the son of William W. and Elizabeth Holmes Woods, who came to Ohio from Pennsylvania.[107] Neill[108] said that Woods was graduated from a college in Euclid, Ohio,

and that he came to Minnesota in 1856. He settled in Madelia in 1868, and began the practice of medicine at once, although it is not clear that he was ever graduated from a medical college. He was licensed to practice in Minnesota by exemption, on November 27, 1883.[107] Neill[108] wrote that Dr. Woods was exceedingly proud of the fact that he had obtained six teeth from the jaws of the celebrated bandit, James Younger (1848-1902), when the Younger brothers were captured in Southern Minnesota, but Dr. Woods apparently was not attending physician to the marauders. Mr. E. L. Gove[109] of Madelia, in a communication to the author, asserted that Dr. Charles O. Cooley (1850-1912) of Madelia, a member of the Minnesota State Medical Association, was the physician who ministered to the wounded desperadoes. Mr. Gove denied that the late Dr. George Henry Overholt (1842-1928) of Kenyon attended the famous robbers, as the *Journal-Lancet* announced at Dr. Overholt's death: "He took part in the capture of the famous James-Younger gang who raided Northfield and rendered first aid to their wounded."[110] This particular controversy, although it is not pertinent to the present study, would be a most interesting problem in regional medical history to pursue. Dr. Woods moved to Montgomery in about 1887 or 1888, and in 1903 was practicing in Owatonna. He died of pneumonia on December 24, 1903.[107]

Dr. Jacob W. B. Wellcome (1825-1906) was born in New Portland, Maine, on June 4, 1825, and was educated at Burnham's High School.[111] He came to Garden City in Blue Earth County in 1858, from Wisconsin. At the age of nineteen or twenty he began the study of medicine under a preceptor, but many years were to pass before he would receive the degree of Doctor of Medicine. In 1862, Dr. Wellcome was appointed examining surgon by the War Department, and for seven months he served as surgeon to the Tenth Minnesota Infantry Regiment. In 1871, Dr. Wellcome moved to New Ulm, and in 1875 he went to Sleepy Eye, where he remained for the rest of his life. In 1872, he was appointed to the post of examining surgeon for pensions, a position he occupied until 1876.[111] At Sleepy Eye, Dr. Wellcome became a charter member of Albert Chapter No. 31 of the Royal Arch Masons, and surgeon to the Chicago and Northwestern Railway Company. He was a member of the first board of censors of the old Minnesota State Eclectic Medical Society, which he helped to establish at Owatonna on May 26, 1869, and which he served as vice-president and secretary, although he did not at that time have his doctor's degree. It was Dr. Wellcome's custom periodically to attend lectures at the old Saint Louis College of Physicians and Surgeons, and in 1883 he obtained the degree of Doctor of Medicine from this institution. He was licensed to practice medicine in Minnesota on October 11, 1883.[83] Dr. Wellcome was the preceptor of several Minnesota physicians, including his own son, Dr. Jacob W. B. Wellcome, Jr. (1869-1935), who was graduated from the Saint Louis College of Physicians and Surgeons in 1892. It is interesting to notice that when Dr. Wellcome was proposed for membership in the Minnesota State Medical Society at that organization's fifteenth annual session at Minneapolis in 1883, objection was raised to his election by a member from Dr. Wellcome's territory, possibly on the score of Dr. Wellcome's eclecticism. Nevertheless, he was elected to membership.

The senior Wellcome died of a malignant process of the shoulder on April 8, 1906, at his home in Sleepy Eye. At his death he was a member of the Brown County Medical Society, the Minnesota State Medical Association, and the American Medical Association.[112] An unidentified writer[113] in the *Journal of the American Medical Association* called him "one of the most remarkable men in

the history of Minnesota." Andrews[113] contributed the following sketch of Dr. Wellcome to the aforementioned journal:

> Perhaps the most interesting part of his professional career was at Garden City. When he located there in 1858, he was on the extreme border of civilization; to the west lay a broad expanse of prairie, with here and there a settler; the roads were mere paths, the streams without bridges and many of the frontiersmen living in sod houses. The timbered portions of the country prior to 1862 were inhabited by the red man. He and his tepees were more numerous than the white settlers and their shanties. The night was often made hideous by the whoop of the Indian and the howl of the prairie wolf. In winter there were frequent blizzards, rendering traveling not only difficult but dangerous to life and limb. Such was the condition of the country when Dr. Wellcome began his practice in Garden City. Often at great risk to his life in winter he would respond to calls ten, twenty and thirty miles away over the broad prairie and through blinding snow storms. During the spring freshets the danger was no less because of the swollen streams. These the doctor had to ford, sometimes swimming his horses to do so. So large was his practice and so faithfully did he attend to it that in times when there was much sickness he was practically on the road all the time. In 1862, occurred the memorable and most cruel Sioux massacre. Dr. Wellcome was one of the first to take up arms to protect the frontier settlers; for a while he acted in the double capacity of soldier and surgeon.

In November, 1863, **Dr. Thomas Adams Pierce** (1829-1905) came to the city of Winona from Galena, Illinois. Dr. Pierce was born at Bath, Maine, on December 20, 1829, and was educated at the Litchfield Academy in Litchfield, Maine.[114] At the age of seventeen he began the study of medicine, and soon entered the Homœopathic Medical College of Pennsylvania (now the Hahnemann Medical College and Hospital of Philadelphia), where he studied from 1846 to 1850. He was graduated with the degree of Doctor of Medicine in 1850, and began to practice in Norristown and Wilkes-Barre, Pennsylvania. He spent the winter of 1857 in Washington, D. C., where he became the fast friend of Congressman Elihu Benjamin Washburne (1816-1887) of Galena, Illinois, who was the brother of the Minnesota congressman and railroad builder, William Drew Washburn (1831-1912), despite the orthographic difference in the two surnames. It was said that Congressman Washburne offered Dr. Pierce a position in the Army Medical Corps at the outbreak of the War of the Rebellion, an offer which Dr. Pierce rejected. By virtue of his introduction to Congress through his friendship with Congressman Washburne, Dr. Pierce began to collect the *Congressional Globe* and the *Congressional Record*. Eventually he acquired a library containing more than 300 volumes of these two publications.[114]

In 1858 he went west to Waukegan, Illinois, and later settled at Galena, Illinois, possibly at the solicitation of Congressman Washburne. He remained at Galena until 1863, when he journeyed to Winona and opened an office on Second Street above the old Wickersham pharmacy.[115] On May 14, 1872, at Rochester, Dr. Pierce was elected president of the Southern Minnesota Homœopathic Medical Society.[6] In 1872, also, Dr. Pierce was a candidate for the State Legislature from Winona County on the Democratic-Liberal Republican ticket, but he was defeated by only seven votes.[114] In 1879 he was elected a school director from the second ward in Winona, and was reëlected in 1881. During one term of his tenure he served as president of the Board of Education. It was said that although Dr. Pierce was an independent in politics, his inclination was toward the Republican Party. Two of his intimate friends in Minnesota were General William Windom (1827-1891), United States Senator from Minnesota and Secretary of the Treasury in the cabinets of James A. Garfield

and Benjamin Harrison, and Colonel Mark Hill Dunnell (1823-1904), Congressman from Minnesota and a founder of Pillsbury Academy at Owatonna.[114] It was written that Dr. Pierce's only defect as a practitioner of medicine was his unwillingness to press his patients for fees.[114]

Illness incapacitated Dr. Pierce in April of 1903, forcing him to discontinue a practice of almost forty years in Winona.[114] He died at his home at 365 Johnson Street in Winona at 4 o'clock in the morning, January 4, 1905.[114,116]

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*References 1-18 appear in the June issue, page 479; 19-37 in the July issue, page 572; 38-58 in the August issue, page 674; 59-81 in the September issue, page 769.

(To be continued in the November issue.)

President's Letter

OUR MEDICAL EXAMINING BOARD

AS YOUR president and representative, it has been my pleasure to accept invitations and to visit many parts of our state during this year, as well as various adjacent states; to attend meetings of lay organizations as well as medical societies and, all in all, to observe the standing of the medical profession among the people.

It is with an ever-growing sense of profound satisfaction that I, as a medical man, observe that our profession more and more is finding its place in the innermost lives of the people, as well as at the top of medical thought in the various communities.

Gradually the fact that no other profession is giving of its time and money so unselfishly to our government and state as demonstrated in the building of the new selected army, and that we are receiving no compensation except that satisfaction of a work well done, is beginning to have its influence on public thought. No other profession is looked up to as being the source of sound medical advice. We apparently are giving satisfaction. Integrity will get its just reward.

We are a close-knit profession, accused many times of selfish prerogatives, but can it truthfully be said that a profession which gives of itself to the people as we do, is selfish? We are certainly entitled to every consideration from our communities and gradually are getting it.

Not only are we the guardians of public health from the standpoint of giving rules for proper health conduct, but we are alert, through our State Board of Medical Examiners, to unethical practices within our ranks and, therefore, in protecting the public against miscarriage of medical practice.

At a recent meeting in a neighboring state, it was found that the medical profession there was just beginning to see that a strong board of medical examiners is a very essential thing; that annual registration is necessary in making possible a check-up on unlicensed practitioners; and that in that state they were harboring many men of disreputable reputations who have been forced to discontinue in states such as ours where medical boards with stamina exist. They are now to proceed along the lines laid down in Minnesota.

I wish to express my sincere appreciation of the work which our board in this state is doing to elevate the high standing which our profession has with the general public, and to commend the untiring efforts of their legal adviser in ferreting out and prosecuting cases of unethical practice both without and within our profession.

B. J. BRANTON, M.D., *President*

Minnesota State Medical Association.

EDITORIAL

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

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BUSINESS MANAGER
J. R. BRUCE

Volume 24 OCTOBER, 1941 Number 10

SULFADIAZINE

IN the search for dyes less toxic, and effective over a wider range of infections, a new sulfanilamide compound known as sulfadiazine has been synthesized. First produced in 1940 by Roblin and his colleagues of the American Cyanamid Company, enough laboratory observations and clinical tests have been made to warrant the drug's recent appearance on the market.

It has been found to have some distinct advantages over sulfanilamide, sulfapyridine and sulfathiazole. Although poorly soluble in water, the drug is quickly absorbed from the intestine and reaches a sufficient concentration in the blood more quickly than in the case of the other dyes. Being more slowly eliminated by the kidney, the blood concentration is also better maintained. Since, too, less of the sulfadiazine is conjugated in the animal organism there is less likely to be evidence of kidney irritation. The conjugated acetyl sulfadiazine also is more soluble than the other acetylated compounds.

From a clinical standpoint the drug is said to be even less toxic than sulfathiazole, although occasionally eruptions have appeared and nausea or vomiting has been reported in some 10 per cent of cases.

Spink in his recently published book* reports his experiences with the drug as well as the reports of others. He concludes that sulfadiazine is as effective in pneumococcic pneumonia as sulfapyridine or sulfathiazole; that it is as effective as sulfanilamide in streptococcic infections, and is nearly the equal of sulfathiazole in staphylococcic infections. Dingle cured twelve of thirteen individuals suffering from meningococcic meningitis with the drug alone. It is probably just as efficacious in gonococcic infections as sulfapyridine or sulfathiazole although insufficient reports have appeared. Creevy found it effective in acute urinary tract infections while permanent recovery in chronic infections was the exception.

The drug, according to Spink, can be administered in the same dosage as sulfapyridine and sulfathiazole, with the expectation that the blood concentration will be higher from the same dosage of sulfadiazine after a few days because of its slower elimination. It has been the practice at the University Hospital in cases of pneumonia to give an initial dose of 4 grams of sulfadiazine followed by 1 gram every four hours until the temperature is normal and then 1 gram every six hours for two days cutting the dose in two the next two or three days. The tablets are put out in 0.5 gram size. When needed the drug may be administered in 5 per cent of the sodium salt intravenously.

The drug is not foolproof and patients taking sulfadiazine must be watched for possible, though less likely, toxic reactions.

*Spink, W. W.: Sulfanilamide and related compounds in general practice. Chicago: Year Book Publishers, 1941.

NATIONAL PHYSICIANS COMMITTEE

THE state branch of the National Physicians Committee for the Extension of Medical Service, under the leadership of Dr. Frank Savage, is concentrating its efforts on a statewide campaign to elicit the moral and financial support of members of the Minnesota State Medical Association.

In spite of numerous articles on the purposes of the committee, which have appeared in MINNESOTA MEDICINE, and in spite of a number of circular letters to our membership, there is evidence of lack of information regarding the purposes and activities of the committee.

The medical profession and the American system of private practice have been subject to attacks in spite of the fact that the morbidity and mortality figures show that the health and longevity of our citizens surpass those of any country in the world. Even the Federal Department of Justice has succeeded in having the profession convicted of a criminal combination in restraint of trade. This governmental attack and the attempt to put through the Wagner bill, which would have been a long step towards state medicine, are simply indicative of the existence of a strong element, particularly in the government, which would like to change medical practice in the country, in imitation of state medicine in European countries, to the detriment of medical practice and the health of our citizens.

Although there is no evidence of any intention at this time to resubmit the Wagner bill to Congress, there is evidence of the desire of those in official positions to take advantage of the situation produced by the national emergency to extend governmental medical service to the personnel of defense projects, which can well be handled by local physicians, and to rejected draftees.

There is plenty of evidence of need for educational propaganda (using that much abused word in its best sense) regarding the best interests of our citizens from a medical standpoint. Any measure that works for the betterment of medical practice results in the betterment of the health of our people. Remove the stimulus of competitive private practice, and substitute political control and medical care deteriorates. Plenty of examples of this exist in the world today.

The National Physicians Committee is in the main the publicity and educational agency of the physicians of the United States. As has often been stated, the American Medical Association has as its main function the scientific education of physicians. It has also done a good job in disseminating scientific knowledge to the public. It cannot carry on propaganda in the field of medical economics, so some other organization has to assume this function and the National Physicians Committee has been doing just this for the past year and a half.

Every physician in the United States who has the future of medical practice in our country at heart and wants it to reach even higher levels than it has in the past; every physician who wants the citizens of this country to receive the best possible type of medical care, should join the National Physicians Committee, and not only make a contribution to help it continue the efficient publicity work it has already done, but should constitute himself a committee of one to impress the importance of the American system of medical care on his patients.

Contributions should be made payable, and sent direct, to the National Physicians Committee, Pittsfield Building, Chicago.

WASSERMANN LABORATORY REPORTS

THERE has been such a marked increase in the number of blood specimens submitted for serological testing for syphilis in recent years that it is all the more important that the laboratory reports be correctly interpreted. With the increase in the kind of tests reported some often as positive and some as negative, it is not surprising that physicians not infrequently have difficulty in interpreting the reports. In order to clear up the situation we are publishing in this number an article entitled "The Interpretation of Serological Tests for Syphilis" written especially for MINNESOTA MEDICINE by Dr. Francis W. Lynch, Clinical Associate Professor of Dermatology, at the University of Minnesota Medical School. We recommend the thoughtful reading of this article by all who have occasion to interpret these laboratory reports.

UNITED CHINA RELIEF

AMONG the many relief agencies that America has the privilege of supporting in the war-torn world of today, is that known as the United China Relief. This agency has had less publicity than some of those

furnishing assistance to the allies. China has been offering a stubborn resistance to Japanese aggression and with comparatively little outside assistance. That she is now receiving from the United China Relief substantial aid is a matter for some satisfaction.

In charge of the Medical Division of the organization is Dr. Walter B. Cannon. Dr. Co Tui, a native of Amoy, China, trained at the University of the Philippines and at the Michael Reese Hospital in Chicago, and at present head of the Laboratory of Experimental Surgery at New York University, is vice chairman of the organization, and also on the commission sponsored by the United States government in charge of all purchases here for the Chinese government under the lease-lend program.

The United China Relief organization in coöperation with the American Red Cross has been conducting a campaign to raise $5,000,000 for relief for China. The American Bureau for Medical Relief for China, one of eight agencies coördinating their work under the United China Relief, recently authorized the expenditure of over $200,000 for the shipment of medical and relief supplies to Free China. It is interesting to learn that "Bowl of Rice" parties held throughout California under the leadership of Paul S. Smith, publisher of the *San Francisco Chronicle*, resulted in the raising of $108,000 for China Relief.

Relief has consisted in the shipment of drugs and vaccines, the support of first aid and Red Cross units, and hospitals and medical training centers in Free China. Assistance was given in rebuilding the Red Cross Headquarters and clinic in Chungking which was bombed August 22.

American financial help has assisted in maintaining in China one of the most remarkable relief corps in existence. The Chinese Red Cross Medical Relief Corps was organized by Scottish trained, Dr. Robert K. S. Lim. After seeing service in World War I, and upon his return to China, Dr. Lim organized medical corps for the training of medical students and young doctors for Red Cross work. He organized the Medical Corps into mobile operating, nursing and preventive units. Scores of mobile medical units, which on an hour's notice can be moved, are now operating close to the fighting lines in China under the Chinese Red Cross. They render first aid and their stretcher bearers evacuate the wounded by stages back to the base hospitals. Roads having been destroyed in some areas for a depth of 100 miles back of the front, motor ambulances are impractical in these areas. Dr. Lim has also built a medical center at Kiveiyding for the training of workers in sanitation, engineering, construction of filtration plants, model wells, and the like. Seven additional emergency medical training centers have also been established for training personnel in the elements of nursing and preventive medicine. These centers may become permanent medical schools after the war. Beginning July 1, 1941, the American Bureau for Medical Aid for China, through United China Relief, has been sending $5,000 a month to China to support Dr. Lim's training schools and orthopedic centers, and to supplement the contributions of the American Red Cross.

Contributions for medical aid to China may be so designated and sent to United China Relief, 1790 Broadway, New York, N. Y.

INTERNATIONAL MEDICAL ASSEMBLY

Responses from not only the Northwest, but from all over the country, have been received from doctors planning to attend the International Medical Assembly in Minneapolis, beginning Monday, October 13. Twin City physicians are requested to register at either the Nicollet or Radisson Hotels on Sunday, October 12, to avoid congestion Monday morning.

A Pre-Assembly clinic to be conducted by local physicians will be held at the Minneapolis General Hospital on Saturday, October 11. The Post-Assembly clinic will be held at the University Hospital the following Saturday.

Tickets for the banquet Wednesday evening at the Radisson Hotel should be obtained at the registration desk. Among the speakers to be heard at the banquet will be Dr. Roscoe R. Graham of Toronto, president of the Assembly, who will speak on "The Relations of Canada and the United States to the War"; Dr. Frank H. Leahy of Boston, president of the A.M.A., who will speak on "Present-day Problems of Medicine"; Dr. Evarts A. Graham of Saint Louis, president of the American College of Surgeons, whose subject will be "Medical Responsibilities Placed on America by the War"; Dr. George W. Crile of Cleveland, past president of all three organizations, who has chosen the subject "Lessons from Big Game Hunting." At the speakers' table will be Dr. Donald Balfour of The Mayo Foundation; Dr. Harold S. Diehl, dean of medical sciences at the University Medical School; Dr. Russell W. Morse, president of the Hennepin County Medical Society; Dr. Edgar J. Huenekens, president-elect of the same society; Dr. Thomas J. Kinsella, chairman of the Clinic Committee; and Dr. Charles E. Proshek, local chairman of the Hennepin County Committees. Dr. Proshek will introduced Dr. Roscoe R. Graham, who will act as master of ceremonies.

An innovation in connection with the Assembly this year will be a dinner at the Minneapolis Women's Club, Monday evening, October 13, for the members of the Medical Women's Association in attendance at the Assembly.

TUBERCULOSIS AMONG INDUSTRIAL WORKERS

In a large group of industrial workers the proportion of the cases of tuberculosis found in a minimal stage has almost trebled since 1929. Moderately advanced cases have decreased slightly and far advanced cases are about one-third the former proportion. This change is explained largely by the fact that in recent years fluoroscopic examinations of the chest (and roentgenograms when indicated) have been made prior to employment and as part of the annual routine examinations of all employes of the Metropolitan Life Insurance Company.—From *Bulletin of Met. Life Ins. Co.*

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

CRISIS IN MEDICINE

There is much talk these days about the "crisis of capitalism" and far less than formerly about the crisis of private medicine.

To many physicians, however, and to other informed observers, it appears obvious that the threat to capitalism is also a threat to private medical service and that extraordinary effort on the part of medical men is needed to save medicine from being drawn into the stream of government regulation.

The exigencies of the defense program have precipitated the crisis in business. Caught between priorities, defense contracts, civilian needs, taxes, labor demands, strike threats and price controls, business men may well be troubled about the future of the capitalistic system of America.

By surface comparison medicine appears to enjoy a happy freedom from such burdens and anxieties.

Actually the threat to medicine is no less grave though reminders of it are currently crowded out of the headlines.

No Priorities

Defense requirements may seriously interfere with the medical service to civilians, especially in rural districts; and while there is, as yet, no priority, strike or price control problem and no increase in government restrictions upon the individual physician in the conduct of his practice, it is well to remember that there is in the defense hierarchy an office called Office of Health Defense and Welfare Services. Civilian complaints of lack of service, or of unsatisfactory service, will undoubtedly go to that office in an atmosphere where suppression and control of civilian activities are a normal part of the day's work.

Fortunately for medicine, the director of this office at the moment is Federal Security Administrator Paul V. McNutt, who has shown himself on several occasions to be a friend. But directors in defense organizations change over night and complaints about medical service do not fall upon deaf ears in any Washington department. Furthermore, it is a certainty that the considerable number of men and organizations who have long been interested in health insurance promotions will make capital of any defense emergency.

"Business As Usual?"

Just now it is the hard-pressed business man who is charged with shirking the defense effort in favor of "business as usual." How soon will the doctor face the same firing squad?

If he escapes it will only be because he has carried on so effectively in spite of odds, that complaints are manifestly foolish and unfounded.

No amount of organized opposition will stem the trend more than temporarily if it can be shown that accepted preventive services are neglected no matter how good the reason; or, for example, that early treatment of cancer is prevented in any considerable number of cases by failure of general private practitioners to diagnose them in the early stages.

These are times when every individual practitioner stands in the front line and what he does to convince his community that he is doing a better job than any bright new health unit established with government funds could do in his place in the end will tell the tale.

HELP FOR THE DOCTOR

To give the private practitioner in Minnesota the maximum aid for his task as leader in public health education and preventive medicine, as well as practioner of medicine in his community, the Minnesota State Medical Association has a comprehensive coördinated program which is now getting under way for 1941-42.

First in usefulness is perhaps the so-called "Subject-of-the-Month Program" by which special material is prepared on a single subject each month and all public and medical programs during the month are directed toward that subject. An important part of this program is the packet of new scientific and public health material on the subject sent upon request to any member of the association. These packets include new scientific material and also material for preparation of talks to community groups and for education of patients in the doctors' office. Members are urged to use the material as extensively as possible in public education during the month selected.

October Subject

A new plan by which a special consultant has been appointed for preparation and summary of material each month will be followed this year. The October subject is nutrition, selected to give Minnesota doctors the best possible assistance in extending public knowledge of food values in the emergency. Dr. R. D. Williams of Rochester is consultant for this packet.

As always, the weekly radio program and the regular news service to country papers will be directed during the month to the general subject of nutrition. Speakers will be supplied through the State Office to any interested organization, also to medical societies who wish to include some phase of the subject on their scientific programs.

In addition to the packet material there is a regular Speakers' Library in the State Office containing extensive files of recently published material on a wide index of subjects. This material is available on a loan basis to any member who cares to write for it.

For Vaccination Programs

The importance to the public health and in equal measure to the future of private medicine of extensive medically sponsored immunization and vaccination programs cannot be over-estimated. Many things have operated to halt such programs in the past. The local community doctor may be innocent of blame but clamor for government agencies to assume the responsibility will not take the doctor's innocence into account. Minnesota, next to Iowa, had more cases of small pox in 1940 than any other state in the United States. There is only one reason why, as every informed person knows; that is that vaccination has lagged and physicians must redouble their efforts to see that all babies and—failing that—all school children are vaccinated in Minnesota. The record is better for diphtheria prevention but immunization is acknowledged to be the right of every child and no effort should be spared by physicians to see that it is made available.

Packets of material which included aids to organization of community programs as well as authentic scientific methods were sent out widely over the state last fall. This material is in the hands of every county medical society official, every member of the medical advisory committees throughout the state and every public health nurse in the state. Additional advice and assistance can be secured from the state office or the State Board of Health.

Picture Bright

In every other aspect of public health the picture is bright in Minnesota. New records, among the very lowest in the country, were established last year in death rates of mothers and babies, in tuberculosis and in venereal disease control.

The combined efforts of the physicians and the state department of health which made these records possible are expanding into new fields this year.

Under sponsorship of the Committee on Maternal Health a study of maternal deaths is now underway with the aid of the health department to see if the new low of 2.2 maternal deaths for every 1,000 births can be reduced further. The effort to cut premature infant deaths by demonstration and instruction which began more than a year ago with the aid of the Division of Child Health is being carried to new parts of the state. The joint effort to control venereal disease which has gone on in Minnesota since World War I and which has been crowned with phenomenal success goes steadily forward. The most recent milestone in this advance has been the study and standardization of laboratories doing blood tests throughout the state.

Experiment in Meeker County

Tuberculosis mortality and morbidity rates have declined steadily in Minnesota; but it was left to the Committee on Tuberculosis of the Minnesota State Medical Association to conceive

and put into effect a daring new concept of complete eradication. The Meeker county program, initiated by the committee last spring, proposes to show the world, literally, what can be done to wipe out tuberculosis in one county by following the veterinarians' plan of cattle testing on the area basis. This project, initiated, financed and carried forward by the doctors of the state, is already well advanced.

The experiment is being watched with great interest everywhere and no small element in that attention lies in the fact that this is a public health experiment initiated and carried on by the doctors exclusively.

STRAWS

Indications of the way the wind blows in Washington are to be found in testimony on the general subject of the social security program given by Arthur J. Altmeyer, Chairman of the Social Security Board, before the House Committee Investigating National Defense Migration. Said Mr. Altmeyer:

"At the present there is a justifiable preoccupation with the development of the armed forces and with the manufacture of munitions, supplemented by the commencement of a coördinated program for defense, health and welfare activities, especially for areas near cantonments and for industrial areas expanded or developed under the defense program. Along with this emergency phase, the strengthening of underlying measures for social security must go forward. I hope the Congress will give concerted and continued attention to the need for a comprehensive program designed to spread more evenly and more equitably the economic burden of ill health, the most important gap in the present framework of social security. Through these next major steps in the protection of health and welfare, our Federal Government could complete the basic architecture of the defenses it began to build in 1935 for the economic and social security of individuals, families, and the nation.

"Unhappy Confirmation"

"We find unhappy confirmation of inadequacies in our health services, reported two and a half years ago by an inter-departmental committee, in the preliminary findings of the draft boards that approximately 40 per cent of our young men have defects so serious as to prohibit or limit their participation in selective service and military training.

"You as well as we are well aware that a pattern for health security has been laid out. Last year and this, Congress has had specific bills available for careful study, bills intended to enact sound programs to meet well-defined needs for new hospitals, clinics and sanatoria and for funds to encourage their effective use; for strengthened public health, maternal and child health services; for more adequate medical services for all the people; and for protection against disability.

Sharp Clashes

"Some sharp clashes have centered around the proposals for health insurance. There are those who say that such proposals lead inevitably to 'socialized medicine,' a vague phrase. 'Socialized medicine' is something to which I am opposed if that phrase means a system which destroys the personal relationship between the patient and his doctor. What we are interested in is the destruction of an even more personal relationship—the personal and exclusive relationship between the patient and his disease. In that we and the doctor have a common aim. But this is largely beside the point, because there is no reason why a plan cannot be evolved which will preserve the patient's right to choose his doctor. Indeed, I believe it is possible to develop a plan which will make it possible for a great many patients to exercise that right for the first time. The present trouble about free choice of a doctor is that so many people have neither a choice nor a doctor.

Must Assure People

"Health problems which demand attention call for increased efforts on two broad fronts: on the one hand, the provision of adequate facilities for the prevention, diagnosis, and care of illness where these are now insufficient or lacking; and, on the other, means of making it possible for individuals to use such services when they are available. We must be able to assure people that they will have a self-respecting income and independence when illness interrupts their ability to earn—to assure them, in plain words, that they can afford to admit they are sick, that they can better afford to stop work than to risk death.

"Measures for health security are helping to pave the way toward giving Americans a more secure footing in life and toward strengthening our national security. In addition, I need only mention to a group such as this the crucial contribution of other general measures for economic progress, among them fair standards for wages and hours, control of child labor, advancement of workmen's compensation, the safeguarding of industrial home work, the more adequate provision of housing, and the beginning of a national program for more adequate nutrition.

No Nation Stronger

"Our immediate program is national security. But no nation can be stronger than its people. Our continuing concern is the strengthening and deepening of our will to the American way of life, our conviction that democracy is the best way and—much of the world notwithstanding—that it is a feasible and practical way of life. We must recognize, as Britain has recognized, that the morale of the home front is essential. In peace or in war, we cannot afford to do less than our utmost to strengthen the place of health security in the 'seamless web' of our national life."

"Eliminate the Bugaboo"

From the *American Federationist* as quoted recently in the *Chicago Daily News:*

"Social security as it is operating today is like a 1930 air force trying to protect American families from an economic Luftwaffe of death, old age, unemployment, disability, and destitution, in the opinion of Robert J. Watt, international representative of the American Federation of Labor," this article states. Proposals for expanding and integrating social insurance are made by Mr. Watt in the current issue of the *American Federationist.* "Social insurance, as the British have learned, is one of the major assets which makes a democracy capable of self-defense because it makes the democracy worth defending," Mr. Watt states. Specific objectives listed by Mr. Watt are: "1. A complete and integrated social insurance program for the entire working population, established on a national scale; 2. Inclusion of some 20,000,000 persons not now covered by the old-age pension system; 3. Disability insurance, established on the same basis as old-age insurance, with the same administrative machinery; 4. Health services, which could be set up, 'if we faced facts and eliminated the bugaboo raised by a few lobbyists for the medical profession'; 5. A Federal, instead of a State system of unemployment insurance."

Free Care in New Zealand

News from New Zealand as reported in a recent issue of the *New York Times:*

"Launching a campaign against the Government's plan for free medical care, doctors asked, September 10, for a Royal Commission to investigate the implications of the measure which will soon be presented to Parliament. The Canterbury division of the National Medical Association called the measure a piece of coercive legislation to which doctors must submit or starve. They also said that doctors are now working double time, due to the numbers sent abroad for war service, and they could not possibly cope with the increased demands resulting from the proposed system of standard medical care. Doctors directing the campaign for a Royal Commission free from political control said that freedom of the individual was always a fundamental principle of democratic life while it was now proposed to coerce a section of the people under a State medicine."

EMERGENCY MEDICAL SERVICES

Experience in Britain has shown that organization of emergency medical service is an indispensable part of Civilian Defense.

In industrial districts and on the seaboards, the need is especially urgent for obvious reasons; but a complete organization is asked for everywhere by the U. S. Office of Civilian Defense since the time for preparation is before—not after—in any conceivable emergency.

The first of a series of bulletins on the subject has just been issued by Mayor F. H. LaGuardia of New York, director of Civilian Defense, and has been sent at the request of Chief Medical Officer George Baehr, to officers of all county and district medical societies in Minnesota. This bulletin deals with details of organization and personnel. The second, to be issued later, will list supplies and equipment needed.

Emergency medical services are organized nationally by districts to coincide with the Army Corps Areas. Headquarters for this district are therefore located at Omaha. Most medical facilities from which civilian defense organizations in each state will be developed are at the local level, however, and it is therefore regarded as advisable that a local chief of emergency medical services be appointed as the first step in organizing medical facilities for emergencies. State councils will define defense areas and weld these areas into coöperating units. In the preparation and execution of plans, liaison officers of the U. S. Public Health Service attached to headquarters of the Army Corps Area will be available for assistance.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. Dubois, M.D., Secretary

Revocation of the License of Harry A. Miller, M.D.

In view of the incorrect and misleading statements that have been published in reference to the above entitled case, the Minnesota State Board of Medical Examiners wishes to make the following statement:

Following an investigation made by this Board during the first week in May, 1941, concerning the professional services rendered by Dr. Miller to a twenty-four-old unmarried patient, this Board advised Dr. Miller, in writing, under date of June 11, 1941, that a hearing would be held at the next regular meeting of the Board on July 11, 1941, in connection with that case. In view of the fact that the matter had been thoroughly discussed with Dr. Miller and his legal counsel prior to June 11, 1941, this Board also requested Dr. Miller to immediately get in touch with his lawyers "in order that they may have sufficient opportunity to prepare, on your behalf, whatever statement they desire to make." It will be seen from the foregoing that Dr. Miller had thirty days written notice that the matter would be taken up at the July 11 meeting of the Board, and over sixty days notice that the matter was under investigation.

At the regular meeting of this Board held on July 11, 1941, Dr. Miller was present in person and represented by his legal counsel. To the everlasting credit

of Dr. Miller, and his attorneys, Dr. Miller admitted the truth about the matter. Dr. Miller expressed his regret for his professional misconduct and a strong plea was made by his lawyers for leniency based upon the many good things that Dr. Miller had done as a physician and surgeon, and as a citizen. The Board concluded that a suspension of Dr. Miller's license for a period of three years, rather than a permanent revocation of his license, was a proper disposition of the case.

The laws of the State of Minnesota provide the grounds for which a physician's license may be suspended or revoked, and make it the duty of the Board to proceed according to law. The Medical Board does not act secretly, nor without an opportunity to the physician to be heard in person, or by legal counsel, or both. The law further provides that a physician, who is aggrieved by the action of the Board in suspending or revoking his license, may appeal the same to the District Court and to the Supreme Court of Minnesota, if he so desires.

One of the most unpleasant duties that confronts the Medical Board is the suspension or revocation of a physician's license. Nevertheless, it must be apparent that there are times when such action must be taken. In the instant case Dr. Miller was represented by very able legal counsel and we are certain that all of his rights were amply protected. Never at any time, during the investigation, nor subsequent thereto, was there the slightest intimation by Dr. Miller or his counsel that the Medical Board was proceeding in an unfair manner.

Minneapolis Woman Given Suspended Sentence for Criminal Abortion

Re: State of Minnesota vs. Ann Stanton.

On September 25, 1941, Mrs. Ann Stanton, forty-three years of age, residing at 3401 32nd Avenue So., Minneapolis, was sentenced by the Hon. Levi M. Hall, Judge of the District Court of Hennepin Cunty, to a term of not to exceed four years in the Woman's Reformatory at Shakopee, for criminal abortion. Following an investigation by the Probation Officer of Hennepin County, Julge Hall stayed execution of the sentence for a period of two years and placed the defendant upon probation.

Mrs. Stanton was arrested on August 18, 1941, following a joint investigation of her activities by Allen S. Chambers, Assistant County Attorney of Anoka County, Minnesota, and Mr. Brist representing the Minnesota State Board of Medical Examiners. Mrs. Stanton is charged specifically with having performed a criminal abortion on a married woman who resides at Anoka, and who became seriously ill following the abortion. Mrs. Stanton, on being questioned in Court, stated that she had performed no abortions prior to August, 1938. She admitted, however, that commencing in March, 1941, she had performed "several" abortions. Mrs. Stanton admitted that she had no medical training of any kind, except that of a practical nurse. When the Court asked her her occupation, she stated that she had done sewing work. Judge Hall made it very clear to the defendant that she was being placed on probation primarily because she had a good previous record and because notwithstanding the fact that she is divorced, she has done very well in raising twin children, who are now thirteen years of age. Judge Hall further cautioned her that any violation of the law in the future would result in her commitment to Shakopee.

The Minnesota State Board of Medical Examiners wishes to acknowledge the very fine coöperation received in this case from Mr. Chambers, the Minneapolis Police Department and the County Attorney's Office.

In Memoriam

Donald R. Claydon

Dr. Donald R. Claydon of Red Wing, died August 28, 1941, following an automobile accident. He was thirty-nine years of age and had practiced in Red Wing fifteen years.

Dr. Claydon was born in Mazeppa, Minnesota, October 7, 1901, and went to Red Wing with his parents when one year old. His primary education was obtained at the public schools in Red Wing and after one year of high school he entered Shattuck Military Academy at Faribault, graduating in 1920. He then spent two years at the University of Minnesota medical school, taking his last two years at the University of Louisville medical school, where he graduated in 1925. Following his graduation he served as intern at the Letterman Military Hospital in San Francisco and then began practice with the Medical Block Clinic in Red Wing. After five years with the clinic Dr. Claydon opened offices with his father, Dr. L. E. Claydon, and Dr. E. M. Baldigo.

Dr. Claydon was a member of the Goodhue County Medical Society, the Minnesota State and American Medical Associations, and the Southern Minnesota Medical Association.

Dr. Claydon was married March 28, 1925, to Judith Boyd of Kentucky. He is survived by his widow and two children, Donald and Ann. His father still practices in Red Wing and a brother, Dr. Howard Claydon, is located at Zumbrota.

WAR AND DISEASE

Whatever the outcome of the present war, we may be sure that disease will be the final victor, accounting for the largest number of victims and carrying on its deadly work long after the voice of the last gun has spoken. It has been said that the last war was exceptional in that for the first time the number of casualties from military action exceeded the number of victims of disease. That may have been true of certain armies during the period of hostilities, but it is emphatically not true when the victims of disease among the civilians are taken into consideration. Every war produces conditions favoring the spread of disease, of which mass movements of population is one of the most important. In preparation for war the strength of armies is increased by recruits from villages and agricultural districts as well as cities. The former fall ready victims to such diseases as measles and mumps, meningococcic meningitis, and the pneumonias.—FRANK BOUDREAU, M.D., *N. Y. State Jour. Med.*, (July 15) 1940.

* * *

Tuberculosis in the United States Army will be reported in accordance with the standards compiled by a group of specialists under the auspices of the National Tuberculosis Association and published by them under the title, "Diagnostic Standards and Classification of Tuberculosis." A copy of the booklet has been furnished each officer in the Army Medical School.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases
J. L. McLeod, Grand Rapids, Chairman

H. B. Allen, Austin
L. S. Arling, Minneapolis
G. L. Berdez, Duluth
T. G. Clement, Duluth
W. S. Lemon, Rochester
T. A. Lowe, South Saint Paul
R. I. Rizer, Minneapolis
S. E. Sweitzer, Minneapolis
O. H. Wangensteen, Minneapolis
A. E. Wilcox, Minneapolis

OCCUPATIONAL DISEASE REPORTING

The State Board of Health is endeavoring to publicize and stimulate the reporting of occupational diseases as is required of physicians by law.

Early in 1940, the Minnesota Department of Health organized an Industrial Hygiene Unit, the function of which was to provide industry with a technical medical and engineering service for the control of occupational diseases, and to promote more adequate medical services within industrial plants. As a preliminary part in its program, the unit conducted a state-wide survey of plant medical services and plant conditions and processes in an effort to gain a first-hand impression of the problem in Minnesota. In July of this year, the State Board of Health changed the status of the Industrial Hygiene Unit to that of a Division of Industrial Health. Effort is being made at this time to stimulate the reporting of occupational diseases since this division is now in a position to investigate, as far as is practical, all reports of occupational diseases and to offer to industry the services of its medical and engineering personnel in the detection and control of hazardous plant conditions. Reports of occupational disease will also indicate in which industries the most serious health problems occur, and thus point out those industrial groups within which special studies should be made. This service by the Department of Health is intended to be of a purely advisory nature.

County

Code

WRITE PLAINLY WITH INK—THIS IS A PERMANENT RECORD
N. B.—Every item of information should be carefully supplied. The exact statement of OCCUPATION is very important. Physician should state DIAGNOSIS in plain terms. See instructions on back of certificate.

MINNESOTA DEPARTMENT OF HEALTH
Division of Industrial Health
University Campus Minneapolis

REPORT OF INDUSTRIAL OR OCCUPATIONAL DISEASE

Name of Patient..... (Last name) (First name) (Second name)

Address: Street and No..... City or Village.....

PERSONAL AND STATISTICAL PARTICULARS

Sex | Age | Marital Status | Country of Birth

OCCUPATION

(a) Trade, occupation, or work (in which disease was acquired) .....

Particular kind of work in such trade, etc.....

Date of entering this occupation.....

Employer's name .....

Address .....

Employer's business (goods made or work done).....

(b) Previous occupations: *Name of occupations* — *Entered (year)* — *Left (year)*

Previous illnesses, if any, due to occupation: *Disease or illness* — *Year*

Check here if you desire additional forms ☐

MEDICAL CERTIFICATE OF DISEASE

Diagnosis .....

Chief symptoms and conditions.....

Date first symptoms appeared.....

Complicating diseases (such as alcoholism, syphilis, tuberculosis, etc.).....

What substance(s) or condition(s) in your opinion caused this affliction? .....

Duration (actual, estimated)..... (Check which)

Additional facts .....

(Signed)..... M. D.

(Address) .....

.....(Date) ..... 19.....

For instructions see other side

For a purely advisory service of this nature, an occupational disease may be defined as an illness of the body which has the following characteristics:

1. It rises out of and in the course of the patient's occupation.

2. It is caused by a frequently repeated or a continuous exposure to a substance or to a spe-

cific industrial practice which is hazardous and which has continued over an extended period of time.

3. It presents symptoms characteristic of an occupational disease which is known to have resulted in other cases from the same type of specific exposure.

4. It is not the result of ordinary wear and tear of industrial occupation or the general effect of employment or the kind of illness that results from contacts or activities in life outside of the patient's occupational pursuits.

The following is a quotation from the act providing for the investigation and control of poisoning and disease as a result of the nature of the employment and for the reporting of such cases of poisoning and disease; Chapter 322, Session Laws of Minnesota for 1939.

"Be it enacted by the Legislature of the State of Minnesota:

Section 1. INVESTIGATION AND CONTROL OF OCCUPATIONAL DISEASES.—Any physician having under his professional care any person whom he believes to be suffering from poisoning from lead, phosphorus, arsenic, brass, silica dust, carbon monoxide gas, wood alcohol or mercury or their compounds, or from anthrax or from compressed-air illness or any other disease contracted as a result of the nature of the employment of person shall, within five days, mail to the state department of health a report, stating the name, address, and occupation of such patient, the name, address, and business of his employer, the nature of the disease and such other information as may reasonably be required by said department. The department shall prepare and furnish the physicians of this state suitable blanks for the reports herein required. No report made pursuant to the provisions of this section shall be admissible as evidence of the facts therein stated in any action at law or in any action under the workmen's compensation act against any employer of such diseased person. The state department of health is authorized to investigate and make recommendations for the elimination or prevention of occupational diseases which have been reported to it or which shall be reported to it in accordance with the provisions of this section. Said department is also authorized to study and provide advice in regard to conditions that may be suspected of causing occupational diseases, provided information obtained upon investigations made in accordance with the provisions of this section shall not be admissible as evidence in any action at law to recover damages for personal injury or in any action under the workmen's compensation act; provided further, that nothing herein contained shall be construed to interfere with or limit the powers of the department of labor and industry to make inspections of places of employment or issue orders for the protection of the health of the persons therein employed. Whenever upon investigation by the State Board of Health said board reaches a conclusion that a condition exists which is dangerous to the life and health of the workers in any industry or factory or other industrial institution, it shall file a report thereon with the state department of labor and industry." Approved April 20, 1939.

The Form which appears on the preceding page is to be used in the reporting of occupational diseases. Copies of this form will be mailed to physicians in the near future.

AID WELCOMED

It is of interest to note that Minnesota industrialists are already welcoming the aid of the Division of Industrial Health since the law which established the service wisely prohibited the use in court of any information thus secured.

Most physicians, as well as health officers, have watched with some apprehension the tendency of the U. S. Department of Labor to absorb all phases of industrial health into its own program for industry. It is obvious that the program of the labor department cannot be coördinated or integrated with a broad program of adult public health applied to industrial groups such as is possible within a department of health. Enforcement of the health and safety clause introduced under the Walsh-Healy Act into all government contracts for material is placed in the U. S. Department of Labor. The National Committee for the Conservation of Man Power in Defense Industries was oppointed by the Department of Labor to assist industry in meeting provisions of the act. In this state, Mr. A. V. Rowheder of Duluth, Minnesota state representative of the committee, appreciating the fact that the principal responsibility for the protection of the health of workers lies within a department of health and under direction of qualified physicians, appointed Dr. L. W. Foker director of the Division of Industrial Health as a member of his state advisory committee. The division has conducted its program of industrial hygiene in close coöperation with this committee.

Fortunately, there is no lack of medical men qualified by training, experience and interest to aid in carrying on an effective program of health for adult workers in industry in Minnesota.

The Minnesota State Medical Association broadcasts at 11:00 o'clock every Saturday morning over Station WCCO, Minneapolis, Station WLB, University of Minnesota, and KDAL, Duluth.

Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

October 4—Feeding the Nation
October 11—Dieting
October 18—School Lunches
October 25—Nutrition and the Teeth

FORUM ON ALLERGY

The Fourth Annual Forum on Allergy will be held in Detroit, Michigan, January 10 and 11, 1942. Details of the program will be available at a later date.

AMERICAN CONFERENCE ON INDUSTRIAL HEALTH

Under the auspices of the American Association of Industrial Physicians and Surgeons the American Conference on Industrial Health will hold its Second Annual Meeting on November 5 and 6, 1941, at Chicago Towers, Chicago, Illinois. This organization maintains a public forum for all who are interested in the prevention of disease, injury and disability in industry, and the active supervision and promotion of health in industrial groups.

The opening session will be a symposium on the technical problems of industrial health on the basis that health supervision in industry involves two great principles: (1) the adjustment of the working environment to the employe; and (2) the adjustment of the employe to the working environment, including also the human environment. The technical problems are the result of the application of these principles, and run the whole gamut of public health as applied to industry.

The afternoon session will be a symposium on the economics of industrial health, including: (1) organization and cost of a health service, and (2) discussion on the value of industrial health service to the employer, the employe and the public.

The morning of the second day will be given over to a symposium on the social implications of industrial health, discussing how far an industrial health service should go; are hospital and medical care plans related to industrial health service in any practical way; does legislation play a part in this problem; and the evaluation of labor turnover, spoilage, and lack of trained men, together with the experiences of management and the interests of insurance carriers in the medical and social problems presented.

The sessions will close with a schedule of plant medical department inspections, by special arrangements with local industries.

MINNESOTA MEDICAL ALUMNI CLINIC

The Alumni Association of the University of Minnesota Medical School will present its Annual Clinical program at the University Hospitals on Friday, October 31, 1941, which is the day before the Homecoming game between Minnesota and Northwestern Universities.

The 1921 class of the Medical School will celebrate its twentieth anniversary at this time. Several prominent members of this class will participate in the clinical program which is being arranged by Drs. Horace G. Scott, Chairman, J. Richards Aurelius, Harold F. Buchstein, and L. Haynes Fowler.

All physicians are cordially invited to attend this clinical program of the Alumni Association of the University of Minnesota Medical School.

MINNESOTA SOCIETY OF INTERNAL MEDICINE

The fall meeting of the Minnesota Society of Internal Medicine will be held in the Ramsey County Medical Society rooms, Saint Paul, Saturday, October 25, 1941. Dr. Charles N. Hensel, 613 Lowry Medical Arts Building, Saint Paul, is in charge of the program. Dr. Max Hoffman, Saint Paul, is president, and Dr. Reuben A. Johnson, Minneapolis, is secretary of the society this year.

THE MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

Papers presented at the meeting of The Minnesota Society of Neurology and Psychiatry at the Town and Country Club in Saint Paul, September 9, included one on "Symptomatic Treatment of Hysteria" by Dr. Philip H. Heersema of Rochester; and another on "Equine Encephalitis in the Human" by Dr. Alex Blumstein of Minneapolis and Dr. Carl M. Eklund (by invitation) of the Minnesota State Board of Health.

VAN METER PRIZE AWARD

The American Association for the Study of Goiter again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association which will be held at Atlanta, Georgia, June 1, 2, and 3, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or

research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten, double spaced copy sent to the Corresponding Secretary, Dr. T. C. Davison, 478 Peachtree Street, Atlanta, Georgia, not later than April 1.

WABASHA COUNTY MEDICAL SOCIETY

The seventy-third annual meeting of the Wabasha County Medical Society will be held at Wabasha, Thursday, October 9. The business meeting will convene at 4 p.m. in the City Hall and dinner will be served at the Hotel Anderson at 6 p.m. The scientific session following the dinner will include the following: President's Address—"Undulant Fever" (including case reports)—D. G. Mahle, M.D., Plainview; "Enuresis"—Edward N. Cook, M.D., Mayo Clinic, Rochester; "Ligation in Treatment of Varicose Veins"—T. G. Wellman, M.D., Lake City; "Carcinoma of the Cervix"—Victor Bruder, M.D., Winona.

WASHINGTON COUNTY MEDICAL SOCIETY

Washington County Medical Society had its regular monthly meeting September 9. Dr. Russell E. Carlson, an associate of Dr. D. Kalinoff of Stillwater, was elected a member. The guest speaker was John R. Meade, M.D., of Saint Paul. His subject was "diabetes," which he made very interesting. On account of the meeting of the International Medical Assembly in Minneapolis Oct. 13-14, inclusive, our regular monthly meeting for October was voted not to be held.

WOMAN'S AUXILIARY

Mrs. John J. Ryan, *President*
Saint Paul, Minnesota
Mrs. L. R. Boies, *Publicity Chairman*
Knollwood, Hopkins, Minnesota

STATE OFFICERS

At the annual State meeting held in Saint Paul last May, the following State Officers were elected:

President—Mrs. John J. Ryan, Saint Paul
President-Elect—Mrs. W. W. Moir, Minneapolis
Past President—Mrs. M. A. Nicholson, Duluth
First Vice President—Mrs. R. J. Josewski, Stillwater
Second Vice President—Mrs. T. O. Young, Duluth
Third Vice President—Mrs. Neil Dungay, Northfield
Fourth Vice President—Mrs. H. Z. Giffin, Rochester
Recording Secretary—Mrs. L. P. Howell, Rochester
Corresponding Secretary—Mrs. E. V. Goltz, Saint Paul
Treasurer—Mrs. H. F. Wahlquist, Minneapolis
Auditor—Mrs. H. E. Wunder, Shakopee
Parliamentarian—Mrs. J. S. Reynolds, Minneapolis
Historian—Mrs. D. G. Mahle, Plainview.

The first State Board Meeting of the year will be held Friday, October 17, at the Saint Paul University Club at 9:30 a.m., with the new president, Mrs. John J. Ryan, presiding. It will be the pleasure of the group to have as its guest the National Auxiliary President, Mrs. Roscoe E. Mosiman of Seattle, Washington. At the luncheon which follows at 12:30 (also to be held at the University Club) Mrs. Mosiman will be the guest speaker, and it is hoped that many of our State Auxiliary members can be there. Reservations can be made by communicating with Mrs. Lloyd Dack, 106 Cambridge Avenue, Saint Paul, Minnesota, Telephone Emerson 4517.

INTERNATIONAL ASSEMBLY WOMAN'S PROGRAM

The International Assembly of the Inter-state Post Graduate Medical Association of North America will convene in Minneapolis, October 13 to 17.

The Woman's Auxiliary of the Hennepin County Medical Society extends a most cordial welcome to all women guests and women physicians attending.

For their pleasure and entertainment the following program has been arranged:

Monday, October 13

Registration
Reservations for Entertainments
Visits to Exhibits
(Prompt reservations for the various trips and functions will be appreciated by the committee on arrangements.)

Tuesday, October 14

12:15 p.m.

Luncheon and Style Show by the Dayton Company
Dayton's Tea Rooms.....Tickets $0.85

Wednesday, October 15

11:00 a.m.

Tour of Radiation Therapy Department, University Hospital

1:00 p.m.

Luncheon—Coffman Memorial Union
Entertainment by the Coca-Cola Company

7:00 p.m.

Banquet

Thursday, October 16

11:30 a.m.

Sight-seeing Tour of Minneapolis—Courtesy of Hennepin County Medical Auxiliary. Busses leave Radisson Hotel promptly at 11:30 a.m.

1:00 p.m.

Luncheon—Interlachen Country Club
Entertainment—Medical Auxiliary Octet, under the direction of Mrs. Gilbert Seashore. Tickets, $1.00.

The program by the Hennepin County Medical Auxiliary Octet promises to be something new and exciting in the way of entertainment. Special home talent is being secured for your enjoyment. *Come and Laugh!*

The Woman's Program for the Assembly has been arranged by Mrs. F. S. McKinney, Chairman, and Mrs. William Rucker and Mrs. John Curtin Co-chairmen.

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1 Empty one tightly packed measuring cup of S-M-A powder into bottle.

2 Add enough warm previously boiled water to make one ounce.

3 Cap bottle and shake powder into solution. Feed at body temperature.

4 Easy, isn't it?

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400 I. U. of vitamin D
7500 I. U. of vitamin A

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OF GENERAL INTEREST

Dr. Dietrich D. Rempel of Grand Marais has moved to Lester Prairie, where he has opened offices.

* * *

Dr. R. A. Beise of Brainerd is back at his office in the Beise Clinic after two months' illness.

* * *

A suburban office in Saint Paul has been opened by Dr. Norbert J. Lilleberg at 2062 Ford Parkway in the Highland Village district.

* * *

After three years of practice in Chisholm and Hibbing, Dr. R. H. LaBree has become affiliated with the Duluth Clinic, department of surgery, in Duluth.

* * *

Construction of a 32 x 50-foot building to house the offices and clinic of Drs. Charles Bishop Will and William Wallace Will at Bertha, Minnesota, got under way last month.

* * *

Dr. J. L. McKelvey, head of the department of obstetrics and gynecology at the University of Minnesota Medical School, addressed a meeting of the Kansas Obstetrical Society in Salena, Kansas, October 2.

* * *

Dr. John J. Boehrer of the University of Minnesota Health Service did special work in epidemiology throughout the state for the Minnesota State Department of Health during the summer.

* * *

Dr. Wallace S. Sako who was a fellow at the University of Minnesota Hospitals up to June 30, has joined the staff of the Louisiana State University Medical School, Department of Pediatrics.

* * *

Among medical officers in the United States Army who have been ordered to foreign duty is Captain Harold E. Opsahl of Brainerd, assigned to the Station Hospital at Fort Amador, Balboa, Canal Zone.

* * *

Dr. Alfred M. Ridgway of Annandale was confined to his home for several days last month because of a leg injury suffered in a mix-up with a cement block and a piece of wire.

* * *

Dr. James F. Shandorf of Minneapolis is doing special work in obstetrics and gynecology at Cornell University Medical School in Ithaca, New York. He will be there until July.

* * *

Dr. Albert F. Hayes has opened offices at 519 Lowry Medical Arts Building in Saint Paul, and will specialize in obstetrics and gynecology. He will be associated in practice with Dr. Everett C. Hartley.

Dr. O. J. Esser, who has been practicing at Gibbon since 1928, has moved his family to New Ulm where he has opened offices. New Ulm is his former home. Dr. Esser is a graduate of Marquette Medical School in Milwaukee.

* * *

Dr. and Mrs. R. V. Williams of Rushford were honored by the Fillmore-Houston County Medical Society at a dinner, September 22. Dr. Williams, who is retiring, has sold his practice to Dr. Damon W. Cummings of Byron.

* * *

Dr. Julius H. Winer, a graduate of the University of Minnesota Medical School and brother of Dr. Louie Winer, of Minneapolis, announces the opening of offices at 40 East 51st Street, New York City. His practice is limited to urology.

* * *

Dr. John S. LaDue, who has been clinical instructor in the Department of Medicine at the University of Minnesota Medical School, resigned recently to join the staff of the Louisiana State University Medical School, Department of Medicine, in New Orleans.

* * *

Dr. Paul W. Kabler, assistant chief of laboratories, Minnesota State Board of Health, Division of Preventable Diseases, has been granted a year's leave of absence to do postgraduate work at the Harvard University Medical School.

Dr. H. S. Diehl, dean of the University of Minnesota Medical School, will be in Richmond, Virginia, October 26-29, to attend the meeting of the Association of American Medical Colleges. He is a member of the executive council.

* * *

Dr. A. L. Arends of Sandstone has been named a physician on the staff of the Minnesota Colony for Epileptics at Cambridge. Dr. Arends practiced in Sandstone for four years, coming to that city from Askov.

* * *

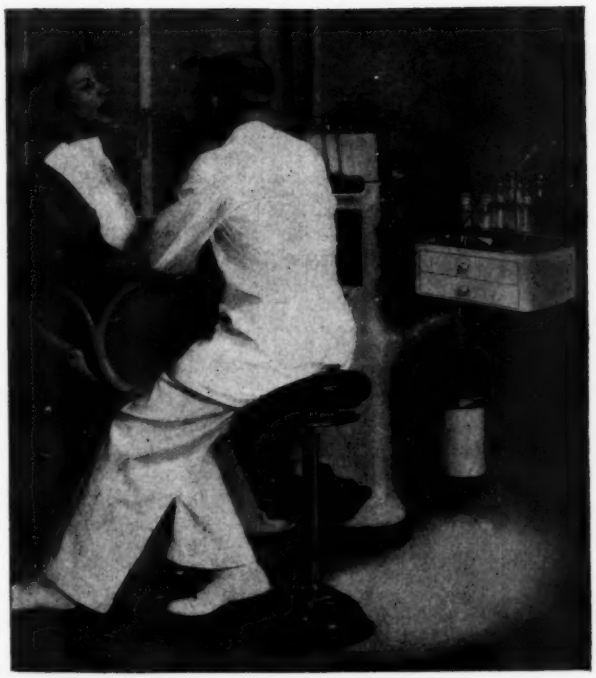
At a postgraduate program of the Polk County Medical Society of Des Moines, Iowa, September 17, Drs. Fred Z. Havens and Bayard T. Horton, both of Rochester, discussed "Plastic Surgery" and "Treatment of Headache," respectively.

* * *

Dr. James E. Trow has opened offices at 6 East Diamond Lake Road in Minneapolis. A graduate of the University of Minnesota Medical School, Dr. Trow interned at Charity Hospital of Louisiana in New Orleans. He has been a resident physician at Eitel Hospital in Minneapolis.

* * *

Dr. J. C. Litzenberg of Minneapolis discussed a paper at the meeting of the Central Association of Obstetrics and Gynecology in New Orleans, October



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3-4-5, and also presented a radio lecture. Among other Minneapolis physicians who attended this meeting were Dr. Leonard Lang and Dr. Paul Larson.

* * *

When the New York Academy of Medicine presents its annual Graduate Fortnight, October 13-24, Dr. Edgar V. Allen of Rochester will be chairman of a panel discussion, October 21, on "Peripheral Vascular Disease, Diagnosis and Treatment, including the Role of Tobacco and Alcohol."

* * *

Construction of a new $10,000 addition to the Northwestern Clinic in Crookston was begun last month. The addition, which will practically double the floor space of the clinic, will be 36 by 56 feet and three stories high. It is expected to be completed by February.

* * *

Dr. Henry E. Rokala, who has been associated with the Bray Hospital in Biwabik for the past five years, has purchased the practice of Dr. Samuel P. McDaniel in Virginia. Dr. McDaniel left Virginia, September 1, for Brunswick, Georgia, to practice.

* * *

Alumni speakers at the second triennial reunion for alumni of the University of Michigan Medical School and former staff members and house officers of the University Hospital, held in Ann Arbor, October 2-4, included Dr. William L. Benedict of Rochester. His topic was "Diagnosis and Treatment of Glaucoma."

* * *

Among those whose names appeared on the program for the nineteenth annual fall clinical conference of the Kansas City Southwest Clinical Society held in Kansas City, October 6-9, was that of Dr. Henry P. Wagener of Rochester, whose subject was "The Grading and Grouping of Hypertensive Lesions in the Retina."

* * *

Dr. Norman E. Rud of Minneapolis has joined the staff of the Two Harbors Hospital and Clinic in Two Harbors as head of the newly established department of internal medicine. Dr. Rud, a graduate of the University of Minnesota Medical School, has been associated in practice with Dr. Robert Rizer for the past twelve years.

* * *

After a half year of hard work in a hospital in England, Dr. Wallace Cole is back at his Saint Paul office. He went to England last December to replace Dr. Philip Wilson as director of the American Hospital in Britain, located at Basingstoke, about half way between Southampton and London. The hospital is supported by the British War Relief Society of this country.

* * *

Four members of the Minnesota Society of Neurology and Psychiatry have been named by Dr. D. E. McBroom, newly appointed Director of the Mental Health Unit of the Division of Public Institutions, to serve in an advisory capacity. They are Dr. J. C. Mc-

Kinley, Minneapolis; Dr. E. M. Hammes, Saint Paul; Dr. Fred B. Moersch, Rochester; and Dr. L. R. Gowan, Duluth.

* * *

Miss Ruth Freeman of New York University has been named head of the public health nursing department at the University of Minnesota. She fills the position left vacant by the resignation of Miss Margaret Arnstein who left a year ago to become associated with the New York State Health Department. Miss Arnstein was recently loaned to the United States Public Health Service for special work.

* * *

Dr. Charles B. Craft of Minneapolis became associated October 1 with the Keeton Clinic in Bozeman, Montana, as a partner of Dr. R. G. Keeton. A graduate of Tulane University Medical School in 1935, Dr. Craft interned at the University of Minnesota Hospitals, where he has been since with the exception of one year when he studied at Northwestern University Medical School. For three years Dr. Craft was a fellow of the National Cancer Institute.

* * *

A series of special radio health programs for junior high school pupils will be presented by Dr. William A. O'Brien, professor of preventive medicine and public health at the University of Minnesota, over station WLB on Wednesdays from 11 to 11:15 a.m. This program, endorsed by the Minnesota State Medical Association and the Minnesota Public Health Association, is in addition to Dr. O'Brien's weekly Saturday morning broadcast.

* * *

Participating in the program of the Tri-County Medical Society at Racine, Wisconsin, August 20, were Drs. H. O. McPheeters and James Kerr Anderson of Minneapolis. Their paper, which was illustrated with lantern slides and movies, was "Injection Treatment of Varicose Veins and Hemorrhoids."

Dr. McPheeters also gave an illustrated talk on varicose veins before the Upper Peninsula Medical Association in Ironwood, Michigan, July 16.

* * *

Guest speakers at the ninety-first annual meeting of the Medical Society of the State of Pennsylvania in Pittsburgh, October 6-9, included the following from Rochester: Dr. Louis A. Brunsting, "Sulfonamide Drugs in Dermatology"; Dr. Albert M. Snell, "Changing Conceptions of Portal Cirrhosis"; Dr. Virgil S. Counseller, "Influence of Infection on Abdominal Hysterectomy"; and Dr. William L. Benedict, "Surgical Treatment of Glaucoma."

* * *

Minnesota men on the program for the one hundredth annual meeting of the State Medical Society of Wisconsin in Madison, September 10-12 included: Dr. Henry W. Woltman, of Rochester, "Late Neurologic Manifestations in Cases of Injury"; Dr. Frank E.

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1. Knight, F., and Shelanski, H. A., "Treatment of Acute Anterior Urethritis with Silver Picrate," Am. J. Syph., Gon. & Ven. Dis., 23, 201 (March), 1939.

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Burch of Saint Paul, "Ocular Manifestations of Head Injuries"; Dr. Henry F. Helmholz of Rochester, "Chemotherapy with the Sulfonamide Group"; and Dr. Philip S. Hench of Rochester, "Classification and Management of Rheumatoid Disease."

* * *

September 22, 1941 was the occasion of a celebration of the thirtieth anniversary of the founding of Saint John's Hospital, Saint Paul, and the birthday of the founder and medical director of the hospital, Dr. Frederick J. Plondke. Among those participating in the program at the dinner in the Minnesota Club were Dr. B. J. Branton, president of the Minnesota State Medical Association; Dr. Joseph Borg, president of the Ramsey County Medical Society; Dr. Arnold Schwyzer; Dr. William A. O'Brien; and Dr. S. A. Arnquist. Among the guests was Miss Magdalena M. Rau, who has been superintendent of the hospital since 1911.

* * *

Three Minnesota physicians participated in the program for the seventy-sixth annual meeting of the Michigan State Medical Society, held in Grand Rapids, September 16-19. They were: Dr. Charles E. Lyght of Northfield, whose paper was entitled, "Some Educational Aspects of Diagnosing Tuberculosis Early"; Dr. Arlie R. Barnes of Rochester, "Problems in the Differential Diagnosis of Coronary Artery Disease"; and Dr. Owen H. Wangensteen of Minneapolis, "Management of Abdominal Injuries."

* * *

The marriage of Dr. William W. Moir, Jr., son of Dr. and Mrs. W. W. Moir, Sr., of Minneapolis, to Dr. Jane Musselman, daughter of Mrs. Roy H. Musselman of Medford, Wisconsin, took place at the Centenary Methodist Church in St. Louis, Missouri, July 12.

Dr. Moir, who is a graduate of the University of Minnesota Medical School, is first lieutenant in the medical corps of the U. S. Army and is stationed at Fort Leonard Wood in Missouri. Mrs. Moir is a graduate of the University of Wisconsin Medical School.

* * *

Medical reserve officers whose orders to report for active duty with the United States Army have been revoked, include:

Leonard K. Buzzelle of Minneapolis, first lieutenant.
Robert J. Cairns of Sanborn, first lieutenant.
George Warren of Minneapolis, first lieutenant.
Thomas Iefferson Edwards of Saint Paul, first lieutenant, who had been ordered to Fort Leonard Wood, Missouri.
Raymond Kenneth Minge of Clarkfield, first lieutenant.
Ralph V. Platou of Minneapolis, first lieutenant.
James F. Shandorf of Northfield, first lieutenant.
James Edward Trow of Minneapolis, first lieutenant.
John Roger Hill, Rochester, first lieutenant, who had been assigned to the Air Corps Gunnery School (nonflying status) at Las Vegas, Nevada.
Wallace William Lindahl, Rochester, first lieutenant, who had been ordered to the Advanced Flying School (nonflying status) at Mather Field, California.

* * *

Dr. Norman Lende, who has been practicing in Faribault since January, 1930, left August 26 for the Panama Canal Zone where he has accepted a position

with the United States Public Health Service. Mrs. Lende and their daughter, Mary Louise, expect to join him some time within the next several months.

Dr. Lende has served as city physician of Faribault since 1933 and as city health officer since 1937, the two offices being combined then. He has also been president of the St. Lucas hospital staff and secretary of the Rice County Medical Society.

* * *

Old friends of Dr. J. L. Adams, pioneer physician of Morgan, paid him an impressive tribute last month, when a bronze plaque bearing a likeness of the doctor was unveiled as part of the Gilfillan Day Festival. Mounted on a massive granite shaft, the plaque is the work of Amerigo Brioschi, noted Saint Paul sculptor. In addition to the likeness of the doctor, the plaque bears his name, James L. Adams, and the legend, "A pioneer doctor. Service to his people filled the life of this man without thought of personal gain."

At the invitation of the committee, Dr. and Mrs. Adams and their daughters came from Van Nuys, California, to be present on the occasion. They were not told, however, the real purpose of the exercises. On the platform with the Adams family were a number of physicians from surrounding towns.

* * *

Medical reserve officers who have been relieved from active duty with the United States Army include:

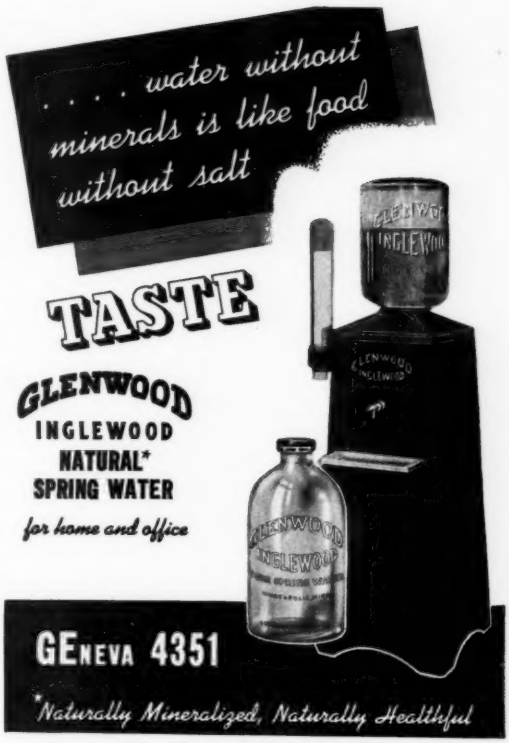
Gerald Steber Ahern of Minneapolis, first lieutenant, who was assigned to Fort Snelling.
Harold William Havel of Jordan, first lieutenant, who was assigned to Field Artillery, 2d Cavalry Division, Fort Riley, Kansas.
William Robert Love of Rochester, first lieutenant, who was assigned to Corps Area Service Command Station Hospital, Fort Snelling.
George Henry Marking of Osseo, first lieutenant, who was assigned to Fort Snelling.
Donovan Legare McCain of Saint Paul, first lieutenant, Fort Snelling.
Alton Curtis Olson of Minneapolis, first lieutenant.
Duane Charles Olson of Gaylord, first lieutenant, Fort Snelling.
Gustavus Alfred Peters of Rochester, first lieutenant, Air Base (nonflying status) Portland, Oregon.
Frank Walter Quattlebaum of Crookston, first lieutenant, Fort Snelling.
Charles Wesley Rogers of Heron Lake, first lieutenant, Fort Leonard Wood, Missouri.
James Russell Scales of Rochester, first lieutenant, Fort Snelling.
Robert William Vines of Rochester, first lieutenant.
Wilson Weisel of Rochester, first lieutenant.
Laurence Maxon Wiig of Rochester, first lieutenant.

* * *

Residents of Sherburn honored Dr. R. C. Farrish at an open house in the community hall, September 14, to mark Dr. Farrish's fortieth anniversary as a practicing physician in Sherburn. The event was arranged as a surprise on Dr. Farrish.

The reception was attended by some two hundred and fifty of Dr. Farrish's friends. Henry Seifert was master of ceremonies and music added to the occasion. The main address was delivered by Judge J. E. Haycraft, who made his audience appreciate more clearly what the availability of a good doctor means.

A native of Rockwood, Ontario, Dr. Farrish as a boy moved to Saint Paul and graduated from the



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FRACTURES & TRAUMATIC SURGERY—Two Weeks' Intensive Course will be offered four times during the year 1942, dates to be announced. Informal Course available every week.
GYNECOLOGY—Two Weeks' Intensive Course will be offered four times during the year 1942, dates to be announced. Twenty Hour Personal Course in Vaginal Approach to Pelvic Surgery November 3rd. Clinical and Diagnostic Courses every week.
OBSTETRICS—Two Weeks' Intensive Course will be offered twice during the year 1942, dates to be announced. Informal Course every week.
OTOLARYNGOLOGY—Two Weeks' Intensive Course will be offered twice during the year 1942, dates to be announced. Clinical and Special Courses starting every week.
OPHTHALMOLOGY—Two Weeks Intensive Course will be offered twice during the year 1942, dates to be announced. Informal Course every week.
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FIRST AID INSTRUCTION FOR BUS DRIVERS

The First Aid Committee of the Minnesota State Medical Association would like to remind the members that they will be called on to give first aid instruction to bus drivers and others at this time and for some time to come because of a law passed by the last legislature. The committee believes that it is logical to make the training as uniform as possible and to stress certain well-known rules for conducting a first aid class that may be useful to any instructor but more so to one who is acting as an instructor for the first time.

1. The class should be limited to twenty or twenty-five persons, unless the instructor has trained assistants available for some of the lessons. The class may be separated into squads and be drilled or examined as necessary.

2. The Red Cross standard first aid text should be followed exactly and not contradicted.

3. Stress should be laid repeatedly on the theme that bad first aid is worse than no first aid. The class should understand that they are learning to be first aiders only and not physicians.

4. Controversy in the class must be avoided. Questions and answers should be limited to the material in the Red Cross first aid textbook.

The committee suggests that the members check with the local Red Cross chapters in their counties to assist them in offering classes in first aid.

The chairman of the committee or its members would be glad to consult with or to correspond with members who are interested.

University of Minnesota medical school in 1901. After an internship at St. Mary's Hospital he began practice in Sherburn, where he has endeared himself to inhabitants of the town and surrounding territory.

Besides being a busy practitioner, Dr. Farrish has found time for golf and has interested himself in landscape gardening. He also has a fine private library. The doctor is a fine type of citizen and his admirers chose to show their love and admiration in this fitting way.

* * *

A number of medical men took part in the convention program of the Minnesota Federation of Women's Club in Willmar, September 23, theme for which was "Health and Defense."

Dr. E. A. Meyerding, executive secretary of the Minnesota Public Health Association, was master of ceremonies; and Dr. B. J. Branton of Willmar, president of the Minnesota Medical Association, addressed the group before the opening of the panel discussion.

Questions selected from hundreds sent in by Minnesota clubwomen were answered by Dr. William A. O'Brien, professor of preventive medicine and public health at the University of Minnesota; Lieutenant-Colonel Richard B. Hullsiek of Saint Paul, medical director of the Minnesota selective service; Dr. O. J. Hagen of Moorhead; Dr. M. C. Petersen, superintendent of the Willmar State Hospital and consultant at Fort Snelling; and Dr. A. V. Stoesser, associate professor of pediatrics at the University of Minnesota. Also Dr. Vern D. Irwin, superintendent of dental health education of the Minnesota Department of Health.

Sister Elizabeth Kenny, Australian nurse whose treatment for infantile paralysis has brought her world renown and who is now instructing nurses at the University of Minnesota and Minneapolis General hospital, was also a guest speaker.

* * *

Army medical reserve officers ordered to active duty within the past few weeks include:

Wallace Everett Anderson, Thief River Falls, first lieutenant, to Camp Grant, Illinois.

John Dennis Barker, Warren, first lieutenant, to Air Base, Portland, Oregon.

George Warren Drexler, Minneapolis, first lieutenant, with 1st Infantry, Fort Leonard Wood, Missouri.

Joseph Arthur Dupont, Excelsior, first lieutenant, with 6th Medical Battalion, Fort Leonard Wood, Missouri.

Michael Allen Garetz, Minneapolis, first lieutenant, with 6th Medical Battalion, Fort Leonard Wood, Missouri.

James Huntington Graves, Saint Paul, first lieutenant, with 92d Engineer Battalion, Fort Leonard Wood, Missouri.

Harry Penn Harper, Rochester, first lieutenant, Corps Area Service Command Station Hospital, Fort Riley, Kansas.

David William Hilger, Saint Paul, first lieutenant, Corps Area Service Command Induction Station, Fort Leavenworth, Kansas.

George Robert Hoffman, Minneapolis, first lieutenant, 1st Infantry, Fort Leonard Wood, Missouri.

Robert William Hollenhorst, St. Cloud, first lieutenant, 6th Medical Battalion, Fort Leonard Wood, Missouri.

Raymond Creighton Hottinger, Janesville, first lieutenant, Fort George Wright, Spokane, Washington.

David B. Kuris, Duluth, first lieutenant, 6th Medical Battalion, Fort Leonard Wood, Missouri.

Brian John McGroarty, Easton, first lieutenant, Camp Grant, Illinois.

Hilbert Mark, Minneapolis, major, to Camp Grant, Illinois.

Albrecht Eugene Muller, Saint Paul, first lieutenant, 6th Medical Battalion, Fort Leonard Wood, Missouri.

Samuel G. Balkin, Minneapolis, captain.

Frederick Joseph Bradshaw, St. Cloud, captain.

Hiram Philip Hampton, Rochester, first lieutenant.

Gordon Francis Madding, Rochester, first lieutenant.
George Oviatt Wood, Rochester, first lieutenant, Fitzsimons General Hospital, Colorado.
Osmund Harald Akre, Clarkfield, first lieutenant, to Air Corps Station (nonflying status), McChord Field, Tacoma, Washington.
John Stephen Ambrusko, Rochester, first lieutenant, to Basic Flying School (nonflying status), Taft, California.
John Byron Beare, Rochester, first lieutenant, Advanced Flying School (nonflying status), Mather Field, California.
Meyer Simon Belzer, Minneapolis, major, 6th Infantry Division, Fort Leonard Wood, Missouri.
John Edward Boysen, Pelican Rapids, first lieutenant, Air Base (nonflying status), Fresno, California.
Bradley Claude Brownson, Rochester, first lieutenant, Air Corps Station (nonflying status), McChord Field, Tacoma, Washington.
James Willis Burks, Jr., Rochester, first lieutenant, Air Corps Station (nonflying status), Fort George Wright, Spokane, Washington.
Wesley Howard Burnham, Minneapolis, first lieutenant, Corps Area Service Command Station Hospital, Fort Leonard Wood, Missouri.
James Clarence Cain, Rochester, first lieutenant, Air Corps Gunnery School (nonflying status), Las Vegas, Nevada.
Paul Joseph Catinella, Rochester, first lieutenant, Basic Flying School (nonflying status), Taft, California.
Arnold Joseph Chlad, St. Paul, first lieutenant, Air Corps Station (nonflying status), McChord Field, Tacoma, Washington.
Daniel Francis Crowley, Jr., Rochester, first lieutenant, Air Corps Station (nonflying status), McChord Field, Tacoma, Washington.
John Prather East, Northome, first lieutenant, Advanced Flying School, Ellington Field, Houston, Texas.
Harold Charles Freedman, Minneapolis, first lieutenant, Basic Flying School (nonflying status), Taft, California.
Gerald Geissler, Hinckley, first lieutenant, Air Base (nonflying status), Pendleton, Oregon.
William Peder Gjerde, Saint Paul, first lieutenant, Air Corps Station (nonflying status), Fort George Wright, Spokane, Washington.
Russell B. Grant, Rochester, first lieutenant, Corps Area Service Command Station Hospital, Fort F. E. Warren, Wyoming.
Samuel Hartley Haigler, Jr., Rochester, first lieutenant, Air Corps Station (nonflying status), Fort George Wright, Spokane, Washington.
Rulon Fullmer Howe, Rochester, first lieutenant, Air Corps Station (nonflying status), Fort George Wright, Spokane, Washington.
Clive Roland Johnson, Rochester, first lieutenant, Air Corps Station (nonflying status), McChord Field, Tacoma, Washington.
James Kenneth Keeley, Rochester, first lieutenant, Air Corps Station (nonflying status), Fort Douglas, Utah.
Mavis Parrott Kelsey, Rochester, first lieutenant, Air Base (nonflying status), Portland, Oregon.
Jack Adrian Killins, Rochester, first lieutenant, Air Base (nonflying status), Portland, Oregon.
Richard Watson Lyman, Rochester, first lieutenant, Air Corps Station (nonflying status), Fort Douglas, Utah.
Daniel James Moos, Minneapolis, first lieutenant, Air Corps Station (nonflying status), Fort Douglas, Utah.
Earl I. Mulmed, Rochester, first lieutenant, Air Corps Station (nonflying status), Fort Douglas, Utah.
Clarence Pearson, Rochester, captain, Air Corps Station (nonflying status), Fort Douglas, Utah.
Robert Joseph Richardson, Rushford, first lieutenant, 6th Medical Battalion, Fort Leonard Wood, Missouri.
Edward E. Rosenbaum, Rochester, first lieutenant, Corps Area Service Command Station Hospital, Fort Snelling.
Frederick William Schilla, Jr., Saint Paul, first lieutenant, Camp Grant, Illinois.
Thomas Scott Sexton, Rochester, first lieutenant, Ogden Air Depot (nonflying status), Ogden, Utah.
Jesse Shapiro, Saint Paul, first lieutenant, Corps Area Service Command Station Hospital, Camp J. T. Robinson, Arkansas.
Stanley John Simons, Akeley, first lieutenant, Air Base (nonflying status), Pendleton, Oregon.
Philip Woodrow Sorenson, Minneapolis, first lieutenant, Air Corps Station (nonflying status), McChord Field, Tacoma, Washington.
John Edwin Teisberg, Middle River, first lieutenant, Air Base (nonflying status), Pendleton, Oregon.
John Donald Van Valkenburg, Floodwood, first lieutenant, Air Base (nonflying status), Pendleton, Oregon.
Rodger Elmer Weisman, Rochester, first lieutenant, Air Corps Station (nonflying status), Moffett Field, California.
Ralph Waldo Emerson Wise, Rochester, first lieutenant, Air Corps Station (nonflying status), Fort Douglas, Utah.
Harlan Lamar Word, Saint Paul, first lieutenant, Corps Area Service Command Station Hospital, Fort Leonard Wood, Missouri.
Jean Paul Wozencraft, Rochester, first lieutenant, Air Corps Station (nonflying status), Moffett Field, California.
John Patrick O'Brien, Rochester, captain.
Robert Oliver Pearman, Rochester, captain.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

MICROBES WHICH HELP OR DESTROY US. Paul W. Allen, Ph.D. Professor of Bacteriology and Head of Department, University of Tennessee; D. Frank Holtman, Ph.D., Associate Professor of Bacteriology, University of Tennessee; and Louise Allen McBee, M.S., Formerly Assistant in Bacteriology, University of Tennessee. 540 pages. Illus. Price, $3.50, cloth. St. Louis: C. V. Mosby Co., 1941.

ESSENTIALS OF GENERAL SURGERY. Wallace P. Ritchie, M.D. Clinical Assistant Professor, Department of Surgery, University of Minnesota Medical School. 813 pages. Illus. Price, $8.50, cloth. St. Louis: C. V. Mosby Co., 1941.

CARDIAC CLINICS—A Mayo Clinic Monograph. Frederick A. Willius, B.S., M.D., M.S. in Medicine. Head of Section of Cardiology, Mayo Clinic, and Professor of Medicine, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester, Minnesota. 276 pages. Illus. Price, $4.00, cloth. St. Louis: C. V. Mosby Co., 1941.

HANDBOOK OF COMMUNICABLE DISEASES. Franklin H. Top, A.B., M.D., M.P.H. Director Division of Communicable Diseases and Epidemiology, Herman Kiefer Hospital and Detroit Department of Health; Associate Professor of Preventive Medicine and Public Health, Wayne University College of Medicine; Special Lecturer in Communicable Diseases and Epidemiology, University of Michigan; Major, Medical Reserve Corps, United States Army. 682 pages. Illus. Price, $7.50, cloth. St. Louis: C. V. Mosby Co., 1941.

SYNOPSIS OF APPLIED PATHOLOGICAL CHEMISTRY. Jerome E. Andes, M.S., Ph.D., F.A.C.P. Director of Department of Health and Medical Advisor, University of Arizona, Tucson; formerly Assistant Professor of Pathology and Clinical Pathology, West Virginia University Medical School; and A. G. Eaton, B.S., M.A., Ph.D., Assistant Professor of Physiology, Louisiana State University School of Medicine, New Orleans. 428 pages. Illus. Price, $4.00, flexible binding. St. Louis: C. V. Mosby Co., 1941.

SULFANILAMIDE AND RELATED COMPOUNDS IN GENERAL PRACTICE. Wesley W. Spink, M.D. Associate Professor of Medicine, University of Minnesota Medical School. 256 pages. Illus. Price, $3.00, cloth. Chicago: Year Book Publishers, Inc., 1941.

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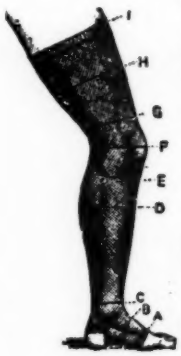

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METHODS FOR DIAGNOSTIC BACTERIOLOGY. Isabelle G. Schaub and M. Kathleen Foley, 313 pages. Price $3.00. St. Louis; C. V. Mosby Co., 1940.

This is a remarkably well-written compilation of all of the bacteriological procedures now in use at the Johns Hopkins Hospital. Being the culmination of many years of practical application and intelligent critical supervision, the bacteriologic procedures described might well be adapted by any laboratory seeking practical procedures. The book has been used for instruction of interns, medical students, and student technicians at Johns Hopkins for some time before publication. It contains numerous "tricks of the trade" which are not found in the usual textbooks on bacteriologic technique.

At $3.00 a copy this book should be in the library of every first class bacteriologic department.

ARTHUR H. WELLS, M.D.

MODERN DERMATOLOGY AND SYPHILOLOGY. S. W. Becker and M. E. Obermayer. 871 pages. Illus. $12.00. Philadelphia: Lippincott, 1940.

In this rather large book the authors' prize considerations were to write a volume of modern dermatology and syphilology for the student and practitioner, although they hope that it may be useful to postgraduate students and specialists as well. The authors were very successful in their endeavor to make the book a living thing and yet more informal than most textbooks, by presenting primarily their ideas and methods and secondarily those of other workers.

Especially interesting is the chapter on functional dermatoses and the authors' approach of treating them. Much stress is laid on the social factors which Becker and Obermayer feel are responsible for a large number of skin conditions. Much valuable information is found in the chapter on occupational and industrial dermatoses which contains also a long list giving the concentration of various substances for epidermal patch tests.

The chapters on syphilis, which are introduced by an interesting review of the history and epidemiology of syphilis, are well written and excellently illustrated. The treatment of syphilis is discussed in considerable detail and brought up to date.

The book contains many hundreds of black and white illustrations and thirty-two colored plates, all of which are excellent.

It can be highly recommended to the practitioner who will find in this book much valuable information; to the specialist, who will find it very interesting; and, last but not least, to the medical student for whom it may be somewhat large and expensive.

E. A. STRAKOSCH, M.D.

TUBERCULOSIS AMONG OLD PEOPLE

A definite increase in the number of old people dying from tuberculosis has occurred during the past few years. In the year 1940 almost one-fourth of the tuberculosis deaths in the City of Peoria, Illinois, were persons of sixty years or over. As is true the country over, in the age group of fifteen to thirty-four more women died than men. The hazards of puberty in the girls and the strain and stress of childbearing are chiefly responsible for this fact. The search for tuberculosis among young women offers a fertile field.—M. POLLAK, M.D., *Ann'l rep. Peoria Mun. Tuber. Sanatorium, 1940.*

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CASE HISTORY No. 103

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Mrs. D——. Symptoms: Eruption on neck and face at site of application of popular cold cream. Discontinuance of all cosmetics advised. On soothing treatment eruption cleared up. Institution of new cosmetic regime with AR-EX preparations resulted in no recurrence of the dermatitis.

As physicians become more conscious of the importance of proper cosmetics in patient care, the more they prescribe AR-EX beauty aids because of their purity and freedom from known allergens and irritants.

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* * *

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* * *

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